BEING A PSYCHOLOGIST

- What information do you need from each person's talk?
- Can you summarize their main area?
- Do you understand their main methods?
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?

NOTES FROM 1st LECTURE 28/09/2020 – Monday 12:15-1:15

- Notes completed from lecture, me and pp!
- This session is being recorded - it will be on Moodle
- This session was mostly introductory information (which is all above)
- Christa new technology trying to edit genomes about mental health . but issues of eugenics.
- Watched juicy video on loneliness - https://www.youtube.com/watch?v=n3Xv_g3g-mA&vl=ru

SHOUT
SHARE
IT

Richard Joiner
(technology & learning)

WEEK 1 NOTES LECTURE 02/10/2020 – Friday

- All notes taken from me, pp, and lecture recording
- **2 RICHARD PAPERS ARE ON MOODLE.**
- **All of Richard's research is online. It is easy to get access to. Just type in his name and you'll find it does come to have more effect on gender difference.**
- **There are 2 papers of his to read on moodle:**

Developmental Psychology ~ Professor Richard Joiner

(His expertise is in digital and social media)

There are 2 halves to his research:

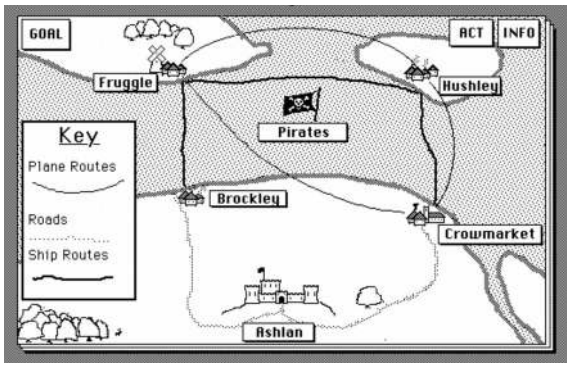
1) His work with children on peer interaction
2) His work with undergrads on gender differences in responses on Facebook

MAIN AREA 1: At the start of his career he was very interested in **Peer interaction** and the use of artificial intelligence and competent computational tools for children to learn. He developed a computer game which he could take into schools and just see how children in pairs worked together and whether working in pairs facilitated their problem solving. Did pairs solve this problem better than individuals?

METHODS - - - He developed this game called 'The King and Crown'. He basically nicked it from the problem with chicken, wolf and feed getting across the river.

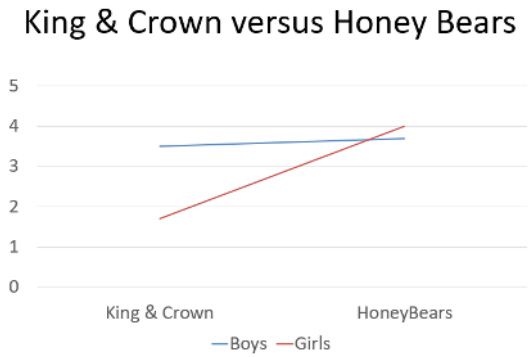
- It was done on children of 10/11. It was quite tricky for them
- This was in the 80's, there was no internet, email, no storage (all floppy disks). He was learning to programme on a Apple Macintosh. It is very basic
- Basically - you have a king and he wants his crown. The crown is in Hushley and you have 3 subjects (a pilot, a captain,a car driver). And you have to use them to get the crown from Hushley to Ashlan. And the problem is that there is some pirates, so if you use the boats, the crown will be stolen.

RESULTS - - - They found that pairs solved this problem a lot better than when they worked individually. So there is a '**peer interaction facilitation effect**', which has been found in literature before. **BUT!** They had a MASSIVE gender effect. The boys performed a lot better than girls. At the time he got a lot of criticism for this in conferences because at the time computers were seen as a boy's thing and there was a lot of talk about how boys were just better than girls for genetic reasons. People pointed out that this was a very 'boyish' game with kings + pirates



ADAPTED 1 METHOD - - - So he developed another game which had exactly the same structure but it was more girlie. It was called 'Honey Bears' and the goal was that the honey bears had to find the honey (in Hilt) before there picnic (Iron Wood) but the honey monsters would steal the honey if they try to cross the river using a boat. There was air bear (plane), water bear (boat) and pony bear (rode the pony).

ADAPTATION 1 RESULTS: They compared the girls and boys performances on the honey bears and on the king and crown. Richard was expecting no difference, that the boys would still perform better on the honey bears just like they did on the King and Crown. **BUT IT TURNS OUT** the girls performed better on the honey bears than they did on the king and Crown. And also that the girls are performing slightly better than the boys on the honey bears task.



CONCLUSION: This showed the massive importance of CONTEXT. He was coming from an artificial intelligence sort of perspective where the brain was seen as a computer and there wasn't any room for context. Cognitive approach of the black box processing. He thinks that the narrative had an impact on the results, the narrative of the honey boys is abit more gender neutral, bears are more warm and cuddly than girlie or boyish.

This then inspired him to make another study which is super super girly version.

ADAPTATION 2 METHOD - - - He made a super girly version. Instead of the king and crown it was the queen and crown. This time you had princesses (princess Ariel piloted the plan, princess Celia pilots the boat and princess Carlie did the driving).

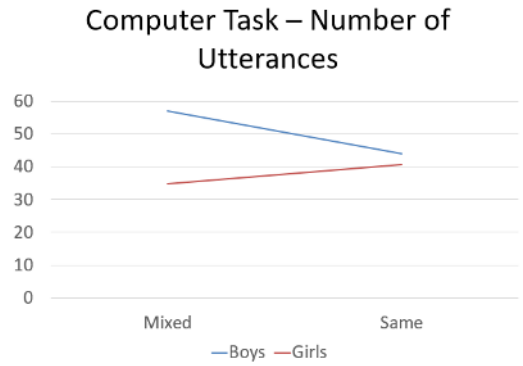
ADAPTATION 2 RESULTS - - - But this time were was no difference in performance. The girls performed as worse on the queen and crown as they did on the king and crown.

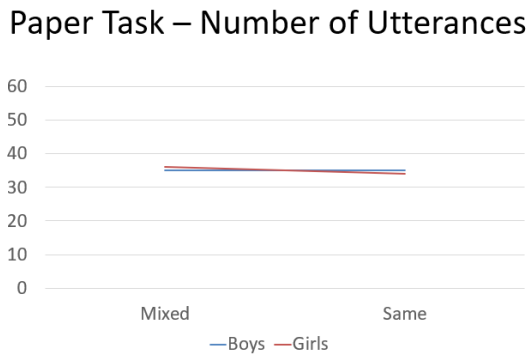
This highlighted how context is a subtle effect and a really delicate thing - and it's not as easy as you think to manipulate. There was luck in the design of the honey bears that resulted in the change.

This led Richard to explore the issue of gender and peer interaction. This happens especially around computers, where boys often dominate the interaction. So they chose to look at a different MEDIUM in peer interaction. They looked at writing a writing activity and we looked at it where it was presented through using paper and also presented using a computer.

ADAPTION 3 METHOD: They were given a poem that was chopped up line by line and the children had to put it back together again. This time they had mixed gender pairs as well as 2 girls and 2 boys. They were expecting that (from before) that when boys work with girls on the computer task that they will dominate. They weren't interested in how well they performed, but how they interacted.

RESULTS:





On the computer tasks - they found what they expected that boys dominate the interaction and talked more than the girls. But when the pairs were off the same gender, there was no real difference.

But when they did the task on paper: Just changing the medium has resulting in there being no difference between boys and girls contribution in mixed and same gender pairs.
So you can see how important context is , in this case it is the medium. And this reflects the gender stereotypes at the time that computers were more for boys.

CRITICAL ANALYSIS OF CHILD PEER FACILITATION:

+ On the original crown and king game they Replicated previous findings of the peer interaction facilitation effect
- The original crown and king added to the stereotype that boys are better than girls innately
+ Honey bears got tested loads again after the first time because they were so surprised with the results. And every time it had the same surprising findings
+ The poem study was important because it challenged the common perception that women talk more than men, but actually according to this men talk more than women.
- Temporal validity – important point as gender stereotypes do change over time. Could they try this study again today and see if you got the same effects between computers and paper?
- The game and software was so basic it cant be used now
- His sample groups were really small, it was about 12 pairs or 24 pairs. Not very generalisable?
- Would it be different with teenagers? Or children with different Ainsworth personality styles?

MAIN AREA 2: This findings were in the 80's and early 90's so they had low temporal validity so he used the finings from the honey bears and applied them to modern social media use. Often social media is seen as a different environment where the rules don't apply- but he constantly shows that you get the same rules and effects on social media that he found with the children.

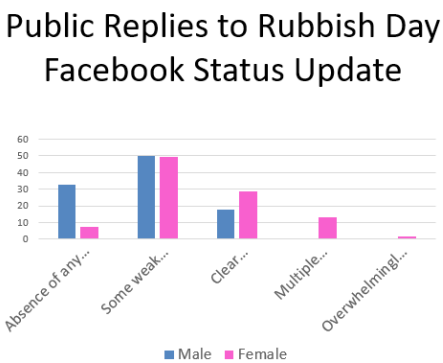
He noticed that on **Facebook** when females post things about having a bad day, it was normally only females that responded with positive messages like 'hope you okay' and 'always here for a chat'. And that when one of his male friends posted something about having a bad day and being ill his male friends basically said 'get over yourself'. There is such a difference response in females and males.

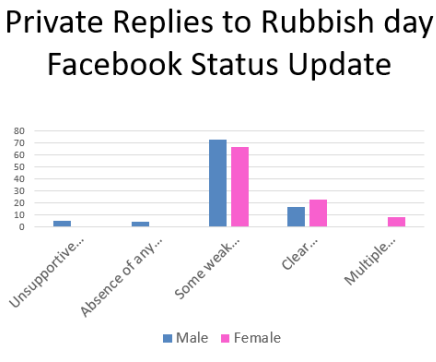
METHOD – So they carried out an experiment to examine gender differences in the language used on Facebook.

- They Facebook update would be – 'I'm having a really rubbish day.'
- They surveyed 600 1st year undergraduate students (388 females and 207 males).
- They were asked whether they would: write a public reply to the Facebook status update or send the close friend a private message. Then analysed public + private replies to Facebook status updates
- They looked at the responses they made and measured the level of emotional support. (Absence of any, some weak, clear, multiple, overwhelming). They measured the level of emotional support using a sort of classification system which looked at each message was made and they had definitions for how much support was given. They used a language content analysis system. But they did get 2 people to use the classification system and then checked that here classification was consistent, inter-rater reliability/consistency
- When searching for terms and phrases that fit the perspectives, they use dictionaries that you can kind of assign words in to beforehand? Richard's system was completely computer based, and it used a program to do a stats analysis so it wasn't subjective at all.

RESULTS: The emotional support males were giving is a lot less than the levels of emotional support the females were giving. This fits the stereotypes and is consistent with the earlier research Richard's done.

You didn't get the same effect in private replies. In private replies the level of support was the same, so only in public replies did we get a gender effect.





Then next thing they looked at was whether the gender of the person posting the status mattered

There are two big theories that explain gender differences in language:

1) **The socialisation theory –** men and women are from different planets and they speak different languages. So you would get bigger differences between the same gender pairs than you would between the mixed gender pairs

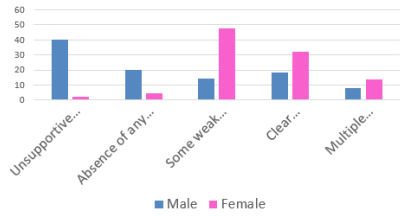
2) **The social context theory –** the gender differences in language that you see are more to do with the gender differences in power and status. Males have more power and status so they try to dominate the interaction. So this would think the differences would appear in mixed gender pairs.

ALTERNATIVE METHOD: They did the study to test these 2 competing hypothesises. They examined gender differences in affiliative language when responding to a same gender close friend compared to when responding to an opposite gender close friend.

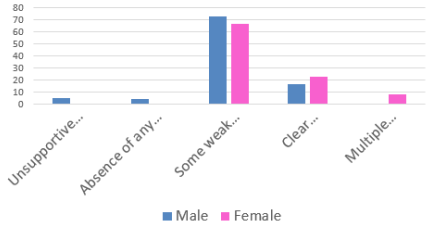
- They had 522 undergraduate students(306 male, 216 female) from University with a mean age 19.01 years (SD = 2.09)
- They used about 5 Facebook statuses, so it wasn't just 1 e.g.: 'I'm having a really rubbish day' or 'It's only midday and today can't get any worse. Need a hug'
- It was either from a male friend or a female friend
- And again they wre asked would they:
    - write a public reply to the Facebook status update
    - send the close friend a private message
- and then there open ended response would be analysed using the content analysis.

ALTERNATIVE RESULTS:

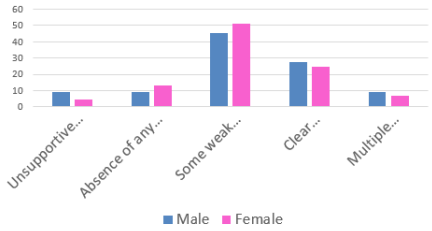
Public Replies to same gender friend's Facebook Status Update



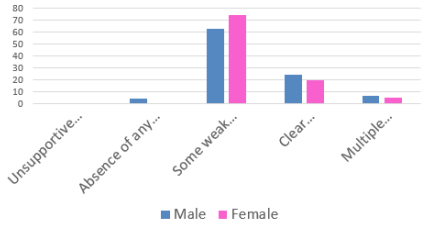
Private Replies to same gender friend's Facebook Status Update



Public Replies to opposite gender friend's Facebook Status Update



Private Replies to opposite gender friend's Facebook Status Update



- They actually had to extend the emotional support analysis because it didn't have negative emotion (non-supportive) , they had to add negative levels. Because they saw that males were really rude saying things like 'get over yourself', 'be a man' and those kinds of things. Some people think that this is banter, other people find banter quite supportive.
- He found the same effect with the private messages with same gender friends.
- The effect seems to be in same gender pairs because when you look at opposite gender pairs there is no differences.
- This therefore **fits the socialisation explanation** that woman are from Venus and Men are from Mars
- But this doesn't necessarily meant the social context expansions is wrong because the poem study showed all the differences in the mixed gender pairs. Sometimes you get social context explanations and sometimes you get the socialisation explanation.
- The explanation is that males and females do have different ways of talking to each other. He thinks this emerges from the different types of social activities that children and adolescents go through. Boys tend to have a group of friends in early adolescence and not a couple intimate friends. They tend to play activities which have a lot about dominance. Whereas girls have more intimate friends and share more.

CONCLUSIONS:

- His perspective on psychology changed. His research moved from A cognitive and computational approach to a Social cultural and experimental approach. His framework changed over time.

- Richard is currently doing an experiment on Instagram where he thinks he is going to find very similar effects, he's just trying to find a past to do it ethically.

CRITICAL EVALUATION:

- **UNGENERALISABLE SAMPLE** – Yes the sample is quite big but it's all first year undergrads, so people who have money, who are probably mostly white etc.

- **METHOLOGICAL ISSUE** - The use of language content analysis may not have been effective in categorising different messages into different groups as messages of support are very subjective and not easy to categorise with clear cut offs (even though they did use computer systems so atleast it was more or less consistent) . But they did get 2 people to use the classification system and then checked that here classification was consistent, inter-rater reliability/consistency.

+ **Important applications**!!! – the second study relates to the stigma of mental illness in men. Not receiving enough support or receiving negative response when they try to open up. Problems with toxic masculinity. This is why males have a higher suicide rate. If a male opens up and says there having a bad day and is greeted with non-supportive messages then they are less likely to open up again. Or is humour a good way to connect with each other?

- **Low ecological validity** The first Facebook study used an questionnaire. It wasn't very realistic as it wasn't real data. It isn't measuring how people would actually respond, it is just saying how they would if it happened hypothetically.. Would it be possible to do this study in a naturalistic setting with the p's using their own personal profiles to respond to the statuses.

- There might be a **social desirability bias?** Wanting to seem like you would be more caring to present yourself in the best light? They want to do it to get real data but there are a lot of ethical issues to get around. Volunteer sample bias?

+ Responded well to the data by changing the emotional support analysis when they go negative emotional support

- How early do you think these gender differences start or are they innate to the individual genetically? Richard hates genetic ideas and evolutionary explanations, he thinks it's all down to the social cultural context we live in.

- **Generalisability** – do older people react the same way as the younger people. The research seems to suggest as you get older, you are less conforming to gender stereotypes. The results are all dependent on cultural gender stereotypes. The results will be similar if the cultural gender stereotypes are. E.g. German's don't admit weaknesses??

- **Role of anonymity?** Maybe a male might be more supportive anonymously because they don't have the gender stereotype of having to be just bantering. But then on the other hand people can use anonymous replies (e.g. tell on my) to be sooo much worse.

+ **Interesting point on applications**– study that says people don't take as much care about a hurricane if it has a female name compared to a male. Or that if you have Siri or a tomtom the gender of it and your gender will affect how you respond to it.

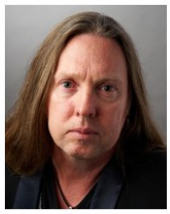
+ They have replicated this study a lot of time and have used not just student but general public as well and found the same findings.

- **GOING FORWARDS** Was the public response of females more understanding in front of unknown/unfamiliar people? People are more likely to conform to gender stereotypes when they're in front of a group of unknown people. And make them less likely to do it when they know the person. This could explain the difference between the public and the private findings.

- **GOING FORWARS -** Could there be certain characteristics that make some Facebook users more likely to post e.g. class, extroversion? So would the results therefore not be generalisable to their gender.

- **GOING FORWARDS** - Temporal validity – gender stereotypes keep changing so will these findings still be applicable in the future? gender is no longer being seen as binary as we are moving away from fixed gender stereotypes. There's also a point on sexuality . How would the results differ?

- **GOING FORWARDS -** There will be different results seen on Facebook rather than a face to face interaction. Not seeing the person, makes you not think of them as a person as much so might have said something you wouldn't have said to there face.



Jeff Gavin
(identity and online communication)

WEEK 2 NOTES LECTURE 05/10/2020 – Monday

Forensic Cyberpsychology - Dr Jeff Gavin

- Has 1 PDF on Moodle left to make notes on - Attributions of victim responsibility in revenge pornography Jeff Gavin and Adrian J. Scott. https://moodle.bath.ac.uk/pluginfile.php/1610514/mod_resource/content/2/gavinscott2019.pdf
- Can you summarize their main area? Jeff is just covering revenge porn and stalking
- Do you understand their main methods? His research does both quantitative and qualitative, but his focus (the 2019) paper is qualitative and thematic analysis of discussions
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done? Good that they use both methods. Quantitative helps you see overall things and gives statistics because it is such a new area but qualitative allows depth and rich insights.

Being a Cyber Psychologist

- Its about the way we act online
- With new media comes new crimes
- The law can't keep up with what people are doing which is enable by computers and social media.

- Stalking was covered by law until the **Protection from Harassment Act 1997**, originally harassment didn't involve stalking

- It wasn't until the **Protection from Freedoms Act 2012** that it provided protection against behaviours associated with **cyberstalking**. The CPS finally realised that harassment can include use of social networking sites, chat rooms & email

- It wasn't until **Criminal Justice and Courts Bill 2014** – that it was a crime to maliciously share sexually explicit pictures of former partners (i.e. revenge porn)

But the whole area is really complicated…

What counts as reasonable online & offline behaviour?

- "Reasonable person test" – When stalking and harassment cases in England & Wales got to court, whether someone is found guilty or not depends on how the jury answer the question – 'is this what a reasonable person would do?' Should someone expect this/ not expect this from another person?

- But in cases of stalking, cyberstalking & revenge porn what is reasonable is **not straightforward**

- The decision to report victimisation depends on perceptions of the event

- Not certain at what point you are a victim

- Stalking often starts really slowly e.g. someone asks you out a few too many times.

- There's not a clear point of when someone has crossed the line, the line between reasonable and not reasonable is really ambiguous.

- Am I overdramatizing? Does it warrant reporting? Is it serious enough? Is it really a crime? Is there anything to report? When does courtship become harassment? But what is considered reasonable in courtship?

- Reasonableness- is very subjective, not objective and science . Are you minimising victims trauma? What is reasonable will be different for every person!

This is a good example of the ambiguity of ‘forceable romantic interactions’.

- Unwanted flowers from a suitor - The same women, 2/3 when surveyed find this sort of thing both ‘annoying **AND** flattering’ simultaneously. If someone put flowers on your door step once a week that might be flattering, if they did it everyday for 3 years it might be more annoying

- An unwanted gift left at work? - An unwanted gift left at work 2/3 of women hold the contractionary ideas that it is both ‘frightening **AND** romantic’

MISPERCEPTIONS AROUND STALKING:

The police themselves and public hold misperceptions of stalking that contradict actual crime statistics e.g. :

- Stranger stalkers are more dangerous than ex-partner or acquaintance stalkers. This is untrue, ex-partner stalkers are more dangerous than stranger stalkers

- Male stalkers taken more seriously than female stalkers. Untrue - female stalkers are just as likely to do harm to their victims or kill, there is no gender difference

- Stereotype is of a man stalking a women. In actual crime statistics it is roughly equal.

'Just World Hypothesis' - Victim blaming (which there is a lot of in crimes like these) can be explained by the Just World Hypothesis. Quite often victims are blamed for their victim hood and are perceived to have partly caused their situation, either there is something they did do that they shouldn't have done, or there's a perception they didn't do something they shouldn't have done.

- We have a need to believe in a just world where people deserve what they get and get what they deserve. It's a cognitive strategy we have to help us get through our lives and think that the world is a good place.

- People need to see the world as a fair place. If someone has fallen victim to something, we reimagine the situation and perceive it in such a way that they are responsible for what happened to them – and this brings balance back to our view of the world.

- *Crimes can be reinterpreted in ways that blame the victim → blaming the victim for the actions of a perpetrator justifies an otherwise unjust situation*

There is a lot of research that is quantitative looking at this e.g. crime statistics. But we are going to look at it from a **QUALITATIVE VIEW.**

- They try to look at why is it that a lot of these cases don't go to court. In order to find this out we need to find out what are the **shared assumptions** about these sorts of cases:

- All of Jeffs research uses *Vignettes* - which is about giving people short stories of incidents or crimes and getting people to respond to them.

- Jeff either gets people to act as individual jurors and decided if someone is guilty/not or he does mock jury studies where a group of 6 act as a jury and come up with a unanimous verdict

- Jurys are chosen pretty much randomly, you can end up with juries that are pretty much all women or all men, but there's normally a mixed sample.

- There are a lot of studies that the verdict depends both on the sex of the victim AND the sex of the jury. **It depends who the juror identifies with.** There are a lot of papers on this is the extra reading on the final slide. They didn't take into account the gender or the juror. Men might be more sympathetic to male perpetrators, or women might be more harsh on women.

- Same sex relationships?? – there is not much research into it?? Lack of generalisability?? With perceptions on same sex stalking. People tend to see homosexual relationships as 'not normal' relationships so the perceptions and expectations of relationships tend not to apply.

Perceptions of stalking - Mock-jury study

The verdicts

	Male perpetrator/ female victim	Female Perpetrator/ Male victim
Stranger 1	Guilty	Hung
Stranger 2	Guilty	Guilty
Acquaintance 1	Guilty	Guilty
Acquaintance 2	Not guilty	Guilty
Ex-partner 1	Hung	Guilty
Ex-partner 2	Hung	Guilty

- 12 focus groups (the 'juries'), each consisting of 5-6 members
- 64 participants (39 female; 25 male); mean age 22.19 (SD=2.63)
- Half of the juries were given a case involving a male victim of a female perpetrator; half given a case involving a female victim of a male perpetrator
- Each group was asked to reach a unanimous verdict of either guilty/not guilty based on current UK laws around stalking
- Part of the vignette …. In the days that followed, the defendant (i.e., perpetrator) approached the plaintiff (i.e., victim) on her way to work and also telephoned her at home. The defendant then sent the plaintiff between five and ten text messages a day between 27 June and 3 July; many of these messages asking why she was not interested in him……She hung up but he kept ringing back so the plaintiff disconnected the phone. In the morning she found that he had left several messages blaming her for what was happening. At this point the plaintiff contacted the police
- They gave an **ambiguous vignette**, they didn't want a cut and dry one because then there would be no discussion. **They needed something realistic, they based this vignette from an actual case that did go to trail – higher ecological validity**
- They looked at the gender of the perpetrator and also the relationship between the accused, because previously it had been shown that ex-partner stalkers were misperceived as less dangerous than stranger stalkers.

There were quantitative patterns:

- The female perpetrator in 5/6 cases where there was a female perpetrator and a male victim– regardless of the type of relationship – was found guilty.
- When there was a male perpetrator and a female victim, it was more ambiguous, some guilty verdicts and some not guilty and a hung jury.

BUT the researchers weren't interested in the verdicts at all, the data for this was the conversations and discussions they had to reach the verdict – quantitative

- They are interested in what sorts of shared understandings shape our perceptions of stalking.

- Although the rules should be the same for everybody, it is understood differently for males and females

A MAN STALKING A WOMAN	
Female Victim	**Male Perpetrator**
Female victim was **blamed** for both causing herself to be stalked (by saying no to the man on the date and not giving a clear enough reason why) and perpetuating and being responsible for the male perpetrators actions (by answering the phone, and also by not answering the phone!)	Male perpetrator's actions were seen as 'reasonable' in the context of courtship & romance. They saw it as reasonable that he was just trying to chase the women and get a date, and his actions were justified because he was in love
"*… because if she's obviously a scatty little bitch and he's obviously quite sound, then, you know*" – they were quite sympathetic towards the perp	" *Some people fall so madly and deeply in love they can't, and then if it ends abruptly they can't stand it*"
"If *she's leading him on and saying, you know, replying to the messages….*" - just replying was seen as leading him on, when a lot of the time the replies were things like 'stop texting me'.	"*He's probably emotionally upset because she broke up with him*"

A WOMAN STALKING A MAN	
Male Victim	**Female Perpetrator**
Male victim not blamed (as the female victim was), but belittled (he shouldn't have called the police and the phrase 'man up' came up a lot).	Most of the juries found her guilty.
"*I think he should just man up*"	Female stalker's actions inconsistent with femininity & romance (women shouldn't do the chasing, shes not behaving how a woman 'should' behave in a relationship)
"I think it's absolutely ridiculous of him to have called the police".	Her actions therefore less ambiguous, & clearly 'unreasonable' even though she did exactly the same actions as the man in the first vignette.
	Quite often, instead of being seen as bad, female perpetrators are often considered as mad.

	Juror 1: *"But she's 31 years old, so it's not like she's 16 and completely in love or whatever."* Juror 2: *"Maybe she's just heard her body clock ticking."* *"She's a crazy bitch"* *"She's a moron"* *"She could be literally a psycho, like".*

REVENGE PORN

They followed this study up by looking at revenge porn and sexting. Because again anything like this is a crime which involves relationships and romance and understandings good/ bad, masculinity/femininity. How a male should behave in a relationship and how a women should behave in a relationship. These are cultural constructs that seem to shape understandings, of what should be straight forward laws.

Sharing, intimacy & mobile technologies:

- As the dominant form of peer to peer communication among young people, texting plays important role in intimacy & social interaction amongst young people (Lenhart, 2012)
- sharing, trust & intimacy now includes sexting, both via mobile phone texts & apps such as Snapchat
- This has led to a new form on technologically mediated harassment – revenge porn
- The sharing of intimate photos have become more and more investigated in recent years because mobile phones and technology is dominant in you people's relationships. Sexting is a major part of relationships.
- **Novel** – there is a lot of research showing how sexting has gone up through lockdown , and is increasing on tik tok!
- Sexing is more about sending naked photos, it is about sharing and indicating trust to another person. It has become almost a milestone in a relationships.
- But sexting is also part of flirting, so people are sexting to people they don't know very well.

- The Ministry of Justice is launching a campaign aimed at raising awareness of the new legislation surrounding revenge porn. The aim of the Be Aware B4 You Share campaign is to:
- Make it clear to potential perpetrators that sharing explicit images, without consent, is unacceptable; it is a crime and will be prosecuted.
- Discourage those thinking that sharing explicit images is a bit of fun by emphasizing the impact that the sharing of private sexual images can have on a victim.
- Advise victims to report the crime to the police.

IBSA

Revenge porn in literature is called Image-based sexual abuse (IBSA)

It is non-consensual pornography that has been shared without the person in the photo knowing or approving, it includes:

- Surreptitious images (e.g. up skirting, down blousing, etc)
- Covert acts (e.g. hidden cameras in public or private places)
- Hacked images (e.g. hacked photos from celebrities)
- Revenge porn (images that you send to a partner, turning up somewhere public e.g. beign sent to friends, being put on Facebook, or on revenge porn sites.

A criminal offence in England & Wales in 2014

- In an 8-month period in 2015, police report 1,160 cases of revenge porn were investigated
- But only 39% went to trail, 61% led to no action; withdrawal of support by victims

Term ‘image-based sexual abuse’ used to highlight control, abuse, coercion and abuse entailed. It has severe impact on victims:

- Job-loss, on- and offline harassment and stalking
- Mental health effects – PTSD, depression, trust/control
- Negative coping strategies e.g. self medicating, alcohol

Those photos were meant just for the two of us. Breaking up with him didn't give him the right to deliberately humiliate me.
#NoToRevengePorn
I shared the pics to hurt her. Then things got out of control. It became a nightmare for her and for me.
#NoToRevengePorn

- Victims report experiencing victim-blame similar to victims of rape

In revenge porn:

- There is a lot of victim blaming.
- Both females and males reacted in a negative way (females seemed more disgusted than men) Women are more likely to blame women than men
- The responsibility was on the female who shared the image in the first place.
- 90% of public health videos on revenge porn, most ads focus on the victim to not send the images. There was no focus on the boy who spread the images. No focus on protecting other peoples privacy. The victim didn't do anything illegal and yet the focus is that it is all her fault.
- -If she was blamed, why would she seek help?

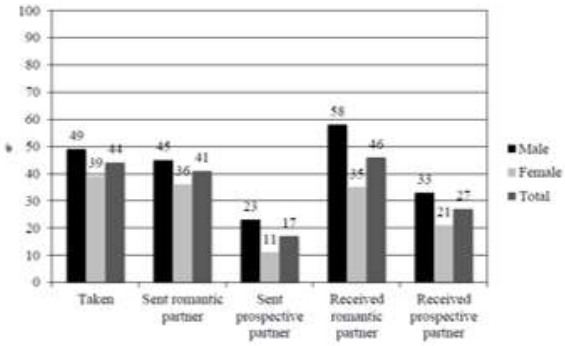
JEFF'S RESEARCH ON IBSA

- He was interested in what sort of assumptions support gender differences in understanding of male and female victims of revenge porn.
- **They combined qualitative and quantitative in one study.**
- The scale items were looked at **quantitatively and published in 2018**, the open ended was looked at using **qualitative thematic analysis and was published in 2019**.
- The 2019 study is the one he set that we are meant to write the essay on!
- They did an online survey with a revenge porn vignette where naked images had been shared without the other persons consent.

- Half the participants saw a male victim of a female perpetrator, the other half saw a female victim of

Perceptions of revenge porn: Two vignette studies (Scott & Gavin, 2018; Gavin & Scott, 2019)

- 222 university students (111 males; 111 females)
- Each read one of two versions of a revenge porn scenario and then responded to a number of scale items (seriousness, responsibility, and sexting experience) and one open-ended question



Proportion of participants who admit to taking, sending and receiving intimate images

a male perpetrator. All they did was change the names, the action was exactly the same

- **They had a number of scale items: e.g. seriousness, responsibility and sexting experience. Plus one open ended question.**

- The vignette- After a night out Emma (19) and Ben (20) had some fun taking naked photos of Emma on Ben's phone…."…Afterwards, Emma thought little more about it and two months later she and Ben broke up. One evening almost a year later, Emma received an email from a male friend saying "Is this you?" together with a link to a website. She clicked on the link which opened a page containing several of the naked photos of her taken on Ben's phone, along with her name and a screenshot of her Facebook profile. The following morning Emma contacted the police."

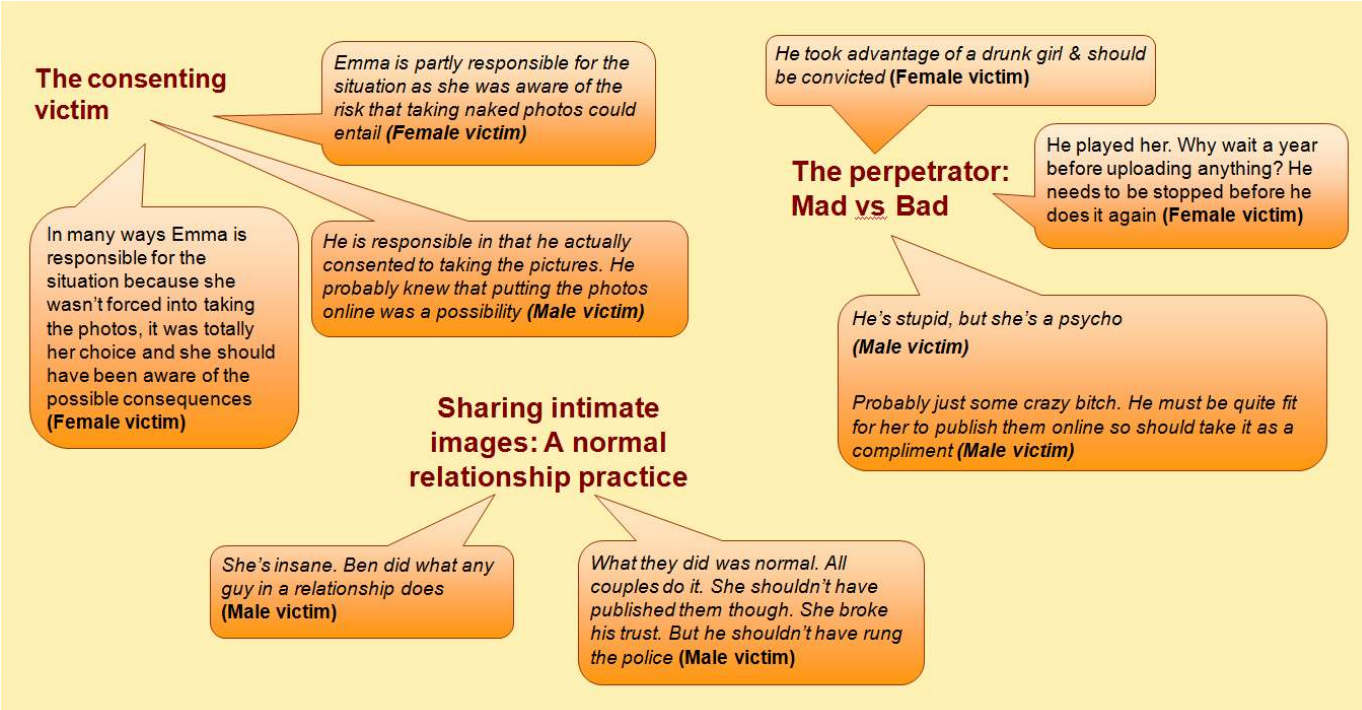
- The sample was Uni students at the Uni of Bath. The numbers show just how often people at university age do sext. More men than women do it. Sending images isn't just to a romantic partner but also to a perspective partner. These numbers just show that sending sexual pictures is normalised and just part of relationships.

- They look at Uni students because it is a completely different crime when people are under the age of 17, the law is a lot more black and white

QUANITATIVE FINDINGS FROM THE 2018 PAPER (Jeff isn't really interested in these) :

- Situation more serious when victim is female
- Extremely distressing for both male & female victims
- Victim responsibility high
- Victim more responsible if pics taken in casual relationship
- Sex of victim & perpetrator **did not** effect perceptions of victim responsibility
- Sex of victim & perpetrator **did** influence jury verdicts (male perpetrators more likely to be guilty)

QUALITIATIVE FINDINGS (WHAT JEFF LIKES) (Gavin & Scott, 2019)


The consenting victim
Emma is partly responsible for the situation as she was aware of the risk that taking naked photos could entail (Female victim)
In many ways Emma is responsible for the situation because she wasn't forced into taking the photos, it was totally her choice and she should have been aware of the possible consequences (Female victim)
He is responsible in that he actually consented to taking the pictures. He probably knew that putting the photos online was a possibility (Male victim)
He took advantage of a drunk girl & should be convicted (Female victim)
The perpetrator: Mad vs Bad
He played her. Why wait a year before uploading anything? He needs to be stopped before he does it again (Female victim)
He's stupid, but she's a psycho (Male victim)
Probably just some crazy bitch. He must be quite fit for her to publish them online so should take it as a compliment (Male victim)
Sharing intimate images: A normal relationship practice
She's insane. Ben did what any guy in a relationship does (Male victim)
What they did was normal. All couples do it. She shouldn't have published them though. She broke his trust. But he shouldn't have rung the police (Male victim)

There was 3 main themes identified across all the responses:

1) The victim was **partially responsible** because they consented to having the photos taken. Where you are male or female if you take these photos you need to accept responsibility that they might be shared somewhere. A lot of people referred to the term 'risk', people are aware of the risk because they have taken these naked photos. But its illegal! That's like saying if you get mugged at the shops, you have some responsibility for it because you made the risk of going to the shops. (even though its legal and everyone does it).

2) Sharing intimate images is a **normal practice** in relationship. This mitigates the responsibility. They should have known better, but EVERYBODY does it, so how can you blame somebody for doing something that everybody does.

3) Whether the perpetrator was viewed as **MAD or BAD**. Female perpetrators publishing photos means they are mad, but if a man does the same thing he is just bad. The vignette said nothing about getting the victim drunk, but the responses where the man was the perpetrator, people said that the man must have got the female drunk. Or a lot of the time they belittle the man, saying he should be flattered that someone shared his naked images because that must mean that he is attractive.

IBSA and the bystander effect (Latane & Rodin, 1969)

It has been incorporated into university bystander training e.g. what to do if you see someone uses sexist language.

ISBVA typically involves 3 actors:

1) The **primary distributor** – the person who initially distributes the image

2) The **bystander** – who quite often might be the person who shares the image. E.g. a friend might send you a naked picture of an ex, and then you might be the person to post it somewhere.

3) The **media** itself, the hosting distributor – such as media platforms or pornographic websites.

Key to the further distribution of images is the bystander, who can either minimise the harm (i.e, intervene in some way) or cause further harm (e.g., distribute the image further)

The bystander effect (Latane & Rodin, 1969) seems to depend on what media is used to share the image. E.g. on Facebook, sent my text individually, put on a group chat, published on a revenge porn site.

Each of these places will have different numbers and types of bystanders. In psychology it is thought that the more people there are who witness something, the more likely they are to intervene and help. This seems to effect why people intervene with revenge porn.

- The bystander effect, or bystander apathy, states that individuals are less likely to offer help to a victim when there are other people present

But

- Given the nature of IBSA , a bystander's involvement can happen in person or virtually, or in intimate or large group settings

Effect of media on the IBSA bystander effect

- People are less likely to do something about revenge porn if the image is shared on Facebook, than if it is shared on just by text or a small group chat. Its to do with the number of people who are going to share responsibility. If its on Facebook then lots of people know about it so others can step in.

- Yeah, with the Facebook thing, there's a bit more of like the bystander effect coming into play, because you assume there's so many people who are going to see this over time, that there's a bit less responsibility on you. (Facebook; Male perpetrator, Female victim)

- …and now I'm like the chances of him finding out, again it's like [participant 3] said it's like, it's almost a bit of a relief if more people know, that diffusion of responsibility. So I'm like, "oh, he'll probably find out now", and I don't have to tell him… and I don't have to feel bad about it.
  (Group chat; Female perpetrator, Male victim)

Effect of sex on the IBSA bystander effect:

- There is also a bystander effect on sex. Men should be flattered if there pictures get shared. Its also normal for men to send nudes 'men just do that'. But there is still judgement if women do it.

- "I know it sounds bad, but like it's always, for me, the woman in either situation would be getting the blame. So, in the first one it's like, "oh, she's crazy", like, "why would she do this?". And then this one, you'd be like "oh, she's a slut, she shouldn't have posted them" (Male perpetrator, Female victim)

- "I mean like, erm men taking nudes and sending dick pics and stuff like that, that is more like, "oh, men just do that", right? And whereas, like a woman does it and you're like, "stop being a slut". (Female perpetrator, Male victim)

Conclusions:

- Researchers, educators, law enforcement & legislation need to take account of everyday meanings and practices with regard to online communication & intimacy

- Everyday meanings often at odds with legal & academic definitions

- Bystander training needs to include an understanding that different social media have different social norms and audiences, and therefore impact a bystander's sense of responsibility in different ways

Set reading: Gavin, J. & Scott, A.J. (2019). Attributions of victim responsibility in revenge pornography. Journal of Aggression, Conflict and Peace Research.

Others: Scott, A.J. & Gavin, J. (2018). Revenge pornography: the influence of perpetrator-victim sex, observer sex and observer sexting experience on perceptions of seriousness and responsibility. *Journal of Criminal Psychology, 8,* 162-72.

Robert Blakey
(criminology and forensic psychology)

WEEK 2 NOTES LECTURE 09/10/2020 – Friday

Forensic Psychology - Dr Robert Blakey

Rough notes made in lecture and from pp but lecture was **NOT RECORDED!!**

- He works part time as a therapy group facilitator in a prison
- He's not actually a registered forensic psychologist
- His emphasis is on research and teaching rather than practising forensic psychology
- VIOLENT OFFENDING IS AN EXPRESSION OF EMOTION
- 1 way of classifying prisoners is through diagnosing them with a personality disorder using the DSM. About 50% of people in prisons have a personality disorder.
- Offender pathway – is a premise to diagnose them with offender personality disorder or show traits. It is a way of getting prisoners help. Offender personality pathway in prisons makes a sentence plan how they will spend their time during their sentence, created with offender and their supervisor. Many different interventions and programmes to stop re-offending. The pathway is a range of different interventions aimed at addresses the traits that people with personality disorders.

BUT - is there another way to classifying offenders rather than just personality disorder (disorder suggests something is wrong with them, and personality that there is something wrong with THEM specifically)

2nd ways of looking at offending- stages in development of traumatic emotion (most offender have gone through trauma) Why do some people offend and others don't? Some people manage the stress that life throws at us more effectively.

Therefore **Compassion-focussed therapy was developed by Gilbert in 2005**

- This is a lot more personal than using the DSM
- Qualitative data analysis to capture real life glimpses into the stages theses traumatic thing happen over time.
- Keep richness of words, rather than converting it to numbers

*Mapping the **STAGES** in the development of traumatic emotion*

- Gilbert's evolutionary model proposes we switch between 3 systems when managing emotions and coping with trauma. Each system is associated with different brain regions and different brain chemistry

- According to Gilbert, psychological distress is caused by an imbalance between the 3 systems e.g. relying on one too much. Often distress is associated with under-development of the soothing system

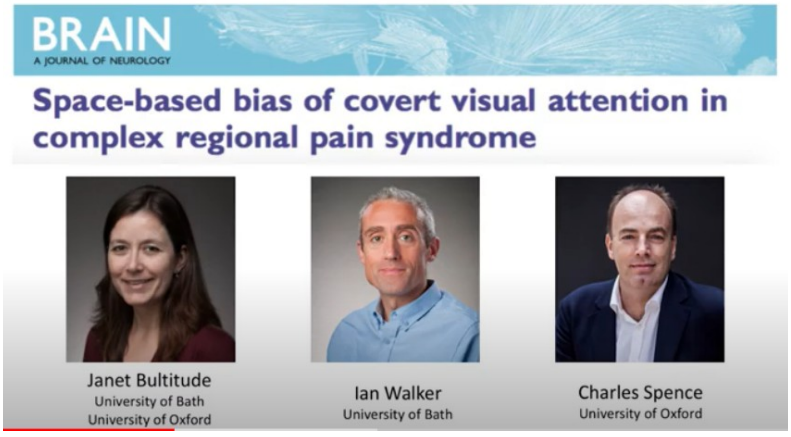
- **What qualitative data exists to give real-life glimpses into the different stages?**
- **What defines the different stages in the development of traumatic emotion?**
- How can we use models of stages of development of trauma to help limit-offending
- Used **thematic analysis** to form stages and development of traumatic
- Similarities between the RDOC new fame work for understanding biological basis of psychology disorders. 5 dimensions of RDOC and 3 of them they map perfectly onto Gilberts stages.

Janet Bultitude
(sensorimotor interaction)

WEEK 3 NOTES LECTURE 12/10/2020 – Monday

The Body, Space and Pain - Dr Janet Bultitude

- The Body, Space and Pain. How out interaction with the world influences our perception
- All of Janet's research is on spatial perception
- Has 1 PDF on Moodle left to make notes on –Space-based bias of covert visual attention in complex regional pain syndrome Janet H. Bultitude, Ian Walker, and Charles Spence https://moodle.bath.ac.uk/pluginfile.php/1261326/mod_resource/content/2/Janet%20Bultitude%20reading
- Notes made on 5 minute YouTube abstract of paper
- Main paper is called - **Space-based bias of covert visual attention in complex regional pain syndrome**
- **Can you summarize their main area?** She is a lecturer in cognitive and experimental psychology. She works in the centre for pain research. She focuses on **neuropsychology**
- **Do you understand their main methods?** Her work is ***EXTREMELY QUANITIATIVE***. She uses temporal order judgment task
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?



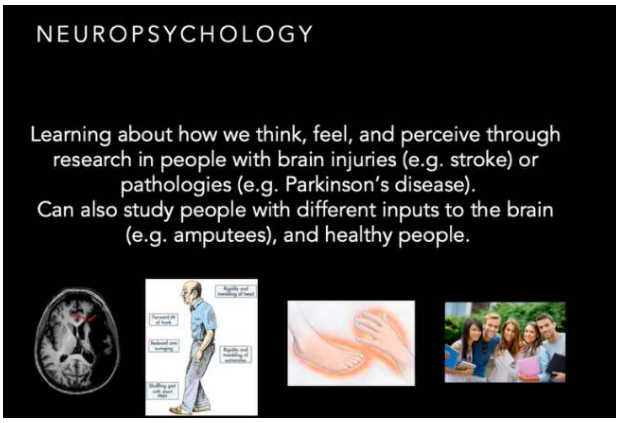
Spatial Attention:

Janet looks at special attention – how we pay attention to things in different parts of our space.

The definition of attention is, bringing things to a higher level of processing.

Attention is really important , what we pay attention to, which different things attract our attention and being able to move our attention and attend to different things is essential to our ability to process different things in our environment and to get around our environment

WHAT I STUDY
1. How our perception of the world is influenced by our interaction with it.
2. How we can make use of this knowledge for rehabilitation.


NEUROPSYCHOLOGY
Learning about how we think, feel, and perceive through research in people with brain injuries (e.g. stroke) or pathologies (e.g. Parkinson's disease).
Can also study people with different inputs to the brain (e.g. amputees), and healthy people.

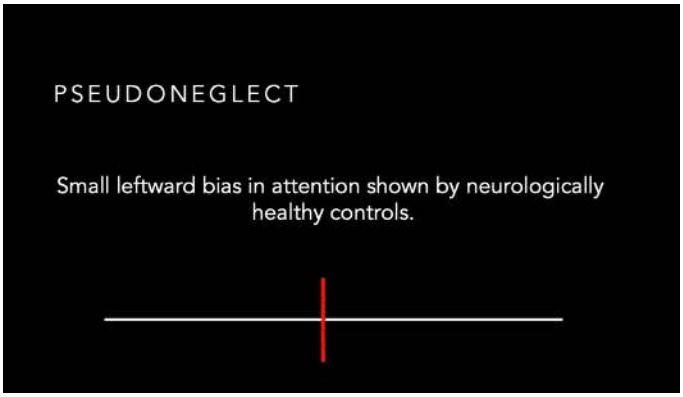
Neuropsychology: ^ Learning about attention through looking at people with brain injuries (e.g. strokes) or pathologies(e.g. Parkinson's).

- Whenever you have someone who has had a stroke and brain damage to a particular part of the brain, or you know the input that they are received to a certain part of the brain is very different, it allows you an opportunity to study those people to see what role that absent part, or the part that is working differently has in normal cognition or normal brain function. E.g. if someone has had a stroke and as a result they can no longer do something (like speak) , this gives an opportunity to study them and try to understand the normal mechanism of language based on the patterns of what they can or cant do. E.g. often if people loose language abilities it is very common for people to loose one aspect of language abilities and not another (Broca and Wernicke)- so they might have problems understanding what you are saying but might be able to produce words. This means that the processes for language comprehension and the processes for language production are different

- If we can look at the brains of these people and see what parts of the brains are damaged, then that also gives you insight into which parts of the brain might be important for speech comprehension/ production, depending on what the patient can't do.

- In this kind of research you CAN make causal inferences. Because e.g. if you knew someone could speak before their brain injury, and then they have injury to a place in the brain and now they can't speak you can make inferences that that that part of the brain is critically important for speaking. But there are issues with things e.g. you will never have measured someone's brain before they had a stroke, so you don't necessarily know for sure what people were like before they had their stroke. Some things you can assume e.g. assume that they would speak before their stroke.

Pseudoneglect



- This **line bisection task** can be used to measure Pseudoneglect (differences in spatial attention). Janet uses it lot as it is a simple example of how we can measure attention.
- You just ask people to put a mark in the middle of this horizontal line.
- Typically healthy people (who don't have any brain damage) (more than 50% of them) will put the mark slightly to the left of the middle. This is **because normal people have a left attention bias**, meaning that we focus slightly more on the left of things (there is a lot of evidence to support this)
- This is a really good example of how attention influences our perception of things. We actually see things differently when they are the subject of our attention. Things that are the subject of our attention we see as being slightly bigger.

HEMISPATIAL NEGLECT

- Hemispatial neglect is a neuropsychological condition in which, after damage to one hemisphere of the brain is sustained, a deficit in attention to and awareness of one side of the field of vision is seen
- Hemispatial neglect is a problem with attention (e.g. visual), the patient has difficulty paying attention to one side of space (usually they have a bias to the right side so cant attend to the left).
- So on the bisection line task the person would mark the middle more on the right, because he is paying a lot more attention to the right side of the line.
- Or you can get someone to look at your nose and then hold up your fingers and wiggle either one of them or both of them. When fingers are wiggled separately people with Hemispatial neglect can normally say which is wiggling, which means here is nothing wrong with his vision. But when both are wiggled he only says it is the right finger wiggling, which is a classic sign of extinction and is seen a lot in Hemispatial neglect patients, it shows that when the two are presented together the one on right gets his attention and he no longer recognises the one on the left.
- This effects more than half of stroke patients. It tends to go away with most patients, but some are left with this as an ongoing problem. It is the biggest predictor or poor outcome following a stroke
- Having a right attention bias will cause huge disabilities e.g. bumping into things on their left. It often causes problems with rehabilitation because they don't engage as much with rehabilitation on the left side of their body. They might need to with things like dressing and washing.

- Our attention is controlled by a very broad network that involves the parietal lobe, the temporal lobe and the frontal lobe. Mainly it is called the **front-parietal attention network**. There is also an upper one called the dorsal network and the lower one called the ventral network.

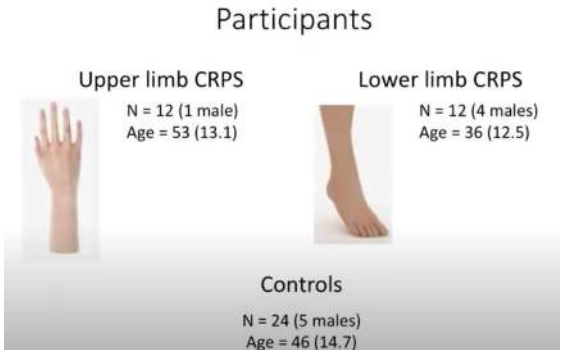
Temporal Order Judgement Task

- This can also be used to measure hemi spatial neglect - It is much more **sensitive**.
- You focus on something in the middle of a screen and then two dots are flashed up quickly on either side, and you say which flashed up firs (you judge the temporal order – which one came first)
- If you have a Hemispatial neglect, you might still notice the dot on the left but you would process it slower because your attention is not working as well so you might see the lights as occurring at the same time.
- You present many trials and you space the time between the two dots appearing by different amounts of time. By doing that, you can figure out how much earlier one dot had to appear before another for the person to think that they happened at the same time. If one has to happen a long time before the other, then that person has a BIG attention problem (big attention bias), but if they are very close together then they have a SMALL attention bias. If the person says that they appeared at the same time (when they did) then the person doesn't have an attention bias
- So this test can figure out **WHETHER** someone has an attention bias but also see **HOW BIG** there attention bias is and quantify it so some extent.

Complex Regional Pain Syndrome (CRPS)

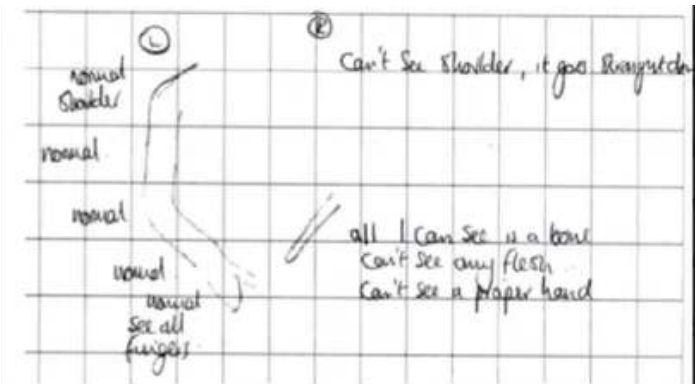
- **In the paper we are looking** at she did this test with people with a condition called Complex Regional Pain Syndrome (CRPS)
- CRPS is a debilitating chronic pain condition in which patients experience pain in one or more of their limbs as well as swelling, temperature changes and other physical symptoms.
- This is a chronic pain condition of mysterious origin, no brain injury. It is not clear why people get this problem, usually there is some history

of an injury or surgery to their effected limb, but it doesn't follow a normal pattern of progress or healing.

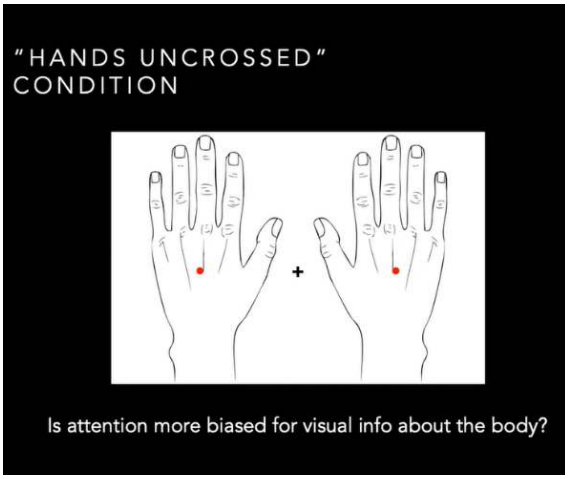


Janet's Research with CRPS

- The reason Janet studies people with CRPS is because they show a lot of signs that suggest they have had changes in their brain's representation of the limb.
- As many as 84% of people with CRPS report one or more symptom that suggests decreased attention to the effected limb. There is evidence that this attention bias might be linked to the severity of people's pain, and that reducing the attention bias could in fact reduce their pain.
- Often, if someone closes there eyes and tries to describe there effected limb, they cannot see it at all. They have no mental representation of their effected limb, with the exception of a make bone where the hand should be. They say things like 'I don't know where my limb is unless I am directly looking at it' or 'I have to tell my limb to move' (movement takes a conscious effector, when it shouldn't).
- These people have not had a brain injury, but because they are showing these changes in their mental representations of their limb, it suggests that there is some kind of plasticity that has taken place in their brain which has changed the brains representation of that limb.
- These signs are quite similar to Hemispatial neglect, so people started investigated whether people with CRPS showed changes in attention that are similar to that of people with Hemispatial neglect.



Janet's Study - - -

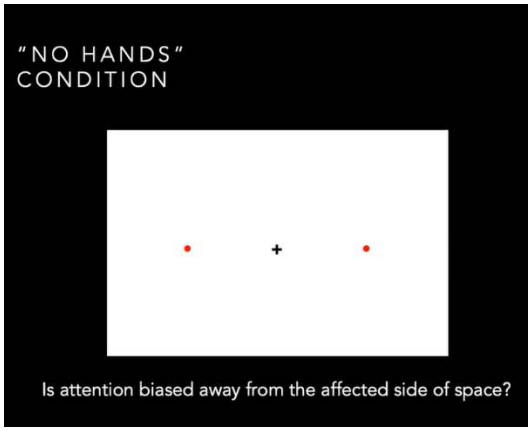


- **Space-based bias of covert visual attention in complex regional pain syndrome. She examines whether people with CRPS have an attention bias for general visual information (visual information that isn't just about the body)**
- Participants were 24 people with CRPS and 24 controls. 12 of the CRPS patients had a the problem with the hand, and the other half had CRPS of the leg. (But the results weren't affected by which body part was effected by CRPS).
- Patients completed questionnaires about their current pain intensity, their perception of the size and shape of their effected body part, and other clinical and demographic characteristics.
- They measured visual attention through the **temporal order-judgment task**
- Participants fixated on a central location (dot), where two flights were projected on their left and right visual fields, separated by different amounts of time.
- Participants indicated with a vocal response which of the two lights appeared first, and the experimenter keyed each response into a computer.

Patients had to do the temporal order-task in 3 different ways:

1) Just looking at the focus cross and flashing dots on a piece of white paper **on the table**.

This is asking whether attention is biased away from the affected side of space? Are they actually paying less attention to the side of space where there effected limb is normally positioned?

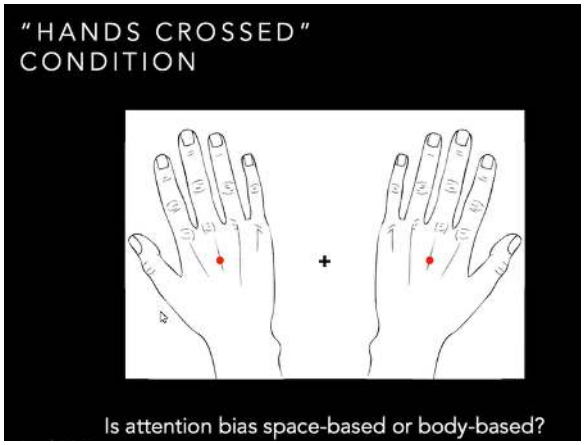


2) They did the task where the **lights appeared on the back of their hands**.

They did this because they wanted to know whether (if they did show an attention problem) was it specific to their actual limbs, or if it is being manifested in the previous conditions even when the limbs weren't there, that the attention problem is just with that general side of space- regardless or not of whether they need to attend to their limb specifically.

3) They did it on **crossed hands**.

This allowed them to test whether any attention bias they had, was specific to their actual affected limb, or whether it was just to do with any part of their body that happened to be on the effected side of space in general. If there is an attention problem with their actual limb, then they should show less attention to the opposite side when there limbs are crossed. Or do they have problems paying attention to their body whenever it is positioned where the affected limb normally resides.



- Using this test, you can figure out the amount of time that the first dot had to appear before the second dot, in order for the two to be perceived as simultaneous- the bigger the number the worse the attention bias. This is called the **Point of Subjective Simultaneity (PSS),** the temporal offset at which a participant would report the two lights as appearing at the same time.

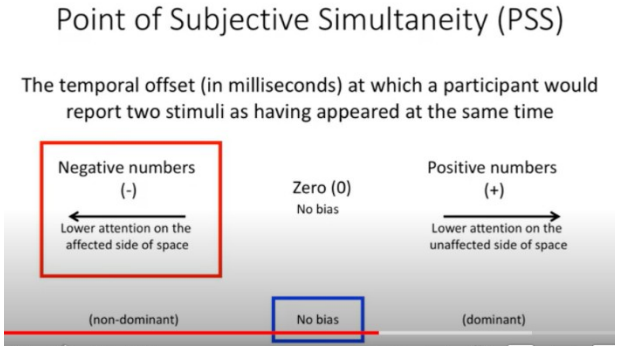
- Healthy people should have a PSS of zero because we see the two things as being simultaneous (our left attention bias doesn't effect this task).

- **They coded the results so a negative number would mean that they have lower attention to the effected side of space (which is what they expected for the patients with CRPS**). And a positive PSS indicates that the participant has less attention to the unaffected side of space.

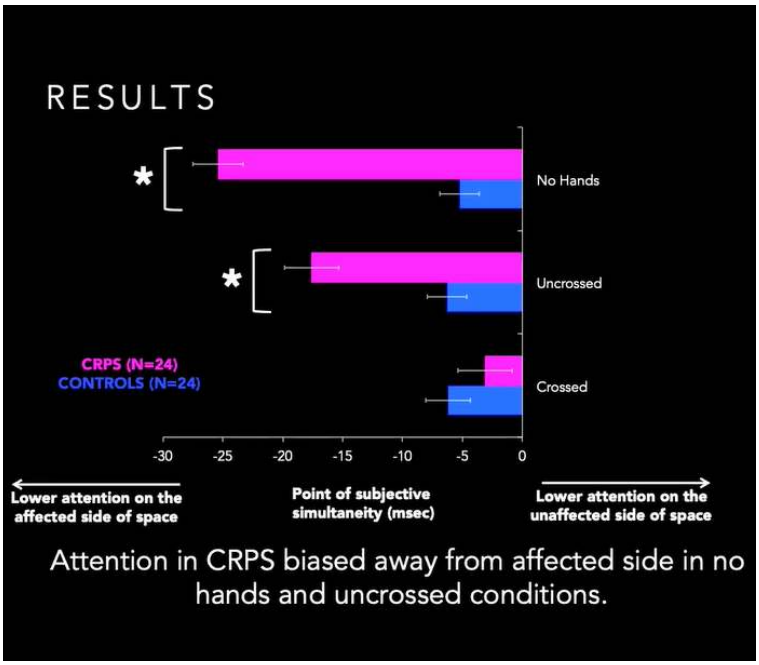
- For the controls, they obviously don't have a damaged limb. But with CRPS the persons good limb has to be the one they use more often. So Janet coded controls dominant limb (e.g. what hand they write with) as the unaffected limb.

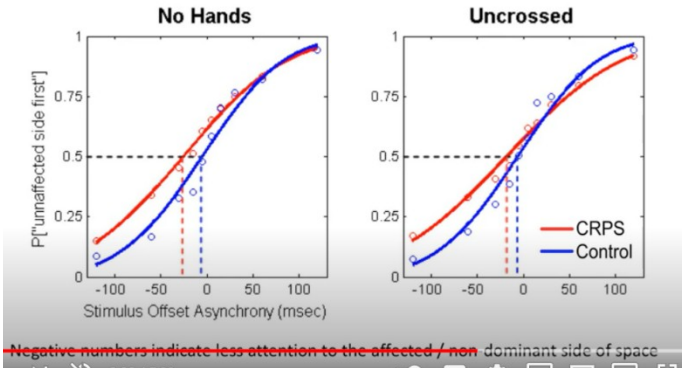
Point of Subjective Simultaneity (PSS)

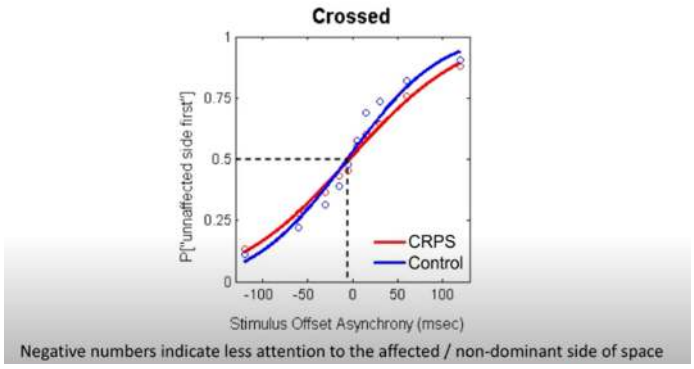
The temporal offset (in milliseconds) at which a participant would report two stimuli as having appeared at the same time


Point of Subjective Simultaneity (PSS)
The temporal offset (in milliseconds) at which a participant would report two stimuli as having appeared at the same time
Negative numbers
(-)
Lower attention on the affected side of space
Zero (0)
No bias
Positive numbers
(+)
Lower attention on the unaffected side of space
(non-dominant)
No bias
(dominant)

Results


RESULTS
No Hands
Uncrossed
Crossed
CRPS (N=24)
CONTROLS (N=24)
-30 -25 -20 -15 -10 -5 0
Lower attention on the affected side of space
Point of subjective simultaneity (msec)
Lower attention on the unaffected side of space
Attention in CRPS biased away from affected side in no hands and uncrossed conditions.





- ➢ They were predicting was lower attention to the affected side, and that is mostly what they showed

- The 1st condition were the hands weren't present - - - the patients have a negative PSS (so they are showing less attention to their effected side of space without their limb even being visible). This tells us that they have a general attention bias that is not specific to their body.

- The 2nd condition were the hands were uncrossed – they showed the same attention bias where they showed less attention to their effected side when the lights were appearing on their hands.

- **Their results reveal that in the no hands and un crossed hands conditions, the CPRS patients had a significant bias of attention away from the effected side of space compared to controls. This was the main finding of the study, and this is THE FIRST EVIDENCE THAT patients with CRPS have lower attention to the effected side of space for general sensory processing, independent from their bodily information.**

- Although the pink bars look different between the first two conditions, there is no different in their performance on the two conditions- the important thing is to compare it to the controls. The patients didn't perform any differently between when they had hands there uncrossed and when they had no hands there. The attention bias is the same magnitude statistically.

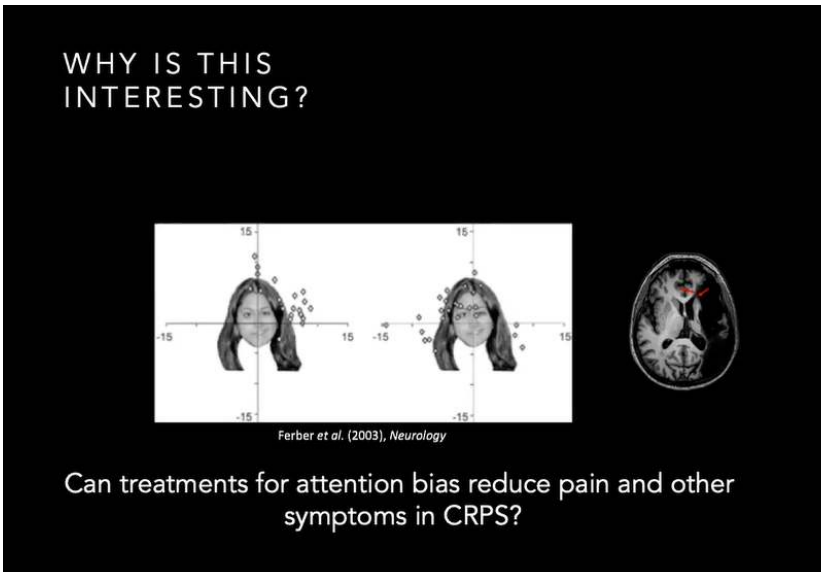
- There is an interesting thing happening in condition 3 (where the hands are crossed) which is that the attention bias goes away.

- If the person has a bias for the side of the effected hand and it was just a body based bias, than if his hands are crossed the attention bias should go over to the other side?

- But the results show that they are not different to controls, **they essentially don't have a attention bias.** This tells us that they have an attention bias that affects general space (from condition 1) but they also have the attention bias that follows the body (condition 2), so when they cross their hands, the attention bias that affects general space and the attention bias that affects the effected side of their Body – **CANCEL EACH OTHER OUT** so they no longer have an attention bias on that condition.

- They also found that the CRPS patients had no significant bias compared to controls in the crossed hands condition. This suggests that there might be a tendency to direct attention away from the hand of the effected side of the body , that is separate from the tendency to direct attention away from the effected side of space.

- Overall, the results support the idea that CRPS is accompanied by a relative decrease in the amount of attention directed towards the effected side of space. **Providing further evidence for the idea that there is a neuropsychological component to the syndrome.**



- **CRITICAL**- This research is only correlational, so can it actually help people? Janet has done some research to try to establish the relationship between their attention bias and their other symptoms

- We know from stroke research how to try to **treat** this attention bias.

- This is a photo that demonstrates **PRISM ADAPTATION TREATMENT.** This tries to reorient attention back towards the left when they are experience a right attention bias.

- The left face is a chimeric face (a face where the two halves of the face have different expressions). The patients were told to just look at the picture, and the little diamonds show where the patients looked. In the first picture the patient mainly looks at the right hand side of the image. Then they did the treatment and immediately after the treatment, people are looking more at the left of the picture. This treatment is helping reoriented patients attention to the left.

- Janet has done work on whether the same treatment can be used to treat people who have CRPS. We don't know whether the attention bias causes their symptoms, but if it did than if you reduce the attention bias then you should reduce there pain and other symptoms in CRPS.

Attention bias was positively predicted by body perception disturbance

Attention bias was NOT predicted by:

- Pain severity (numerical ratings scale)
- Chronicity (weeks since diagnosis)
- Which limb was affected (upper limb, lower limb)*
- Affected side of the body (left, right)
- Handedness
- Pain-related fear of movement

* On an individual basis, upper-limb CRPS patients were more likely to have a PSS value that was outside the upper bounds of the 95% confidence interval around the controls' data

- Focus on the **tools and methods** that Janet's work has used

- Signal detection is the main metric of differences in reaction times for generating these quantitative measures.

- For the temporal order judgment task you use the 'method of constant stimuli'- which is the technical term for how you present the stimuli at different offsets , sometimes the differences in time the dots flashed up was very big and sometimes it was very small. Could use this method e.g. to see the minimum brightness that we need, to be able to see the dots or how loud does a sound need to be for us to hear it.

Nathalia Gjersoe
(development of cognitive biases)

WEEK 3 NOTES LECTURE 16/10/2020 – Friday

Developmental - Dr Natalia Gjersoe

- Has 1 PDF on Moodle left to make notes on – Children attribute mental lives to toys when they are emotionally attached to them - https://moodle.bath.ac.uk/pluginfile.php/1626352/mod_resource/content/1/Gjersoe%2C%20Hall%20%20Hood.pdf
- Can you summarize their main area? Developmental psychology and anthropometrism
- Do you understand their main methods? Force question answers
- Can you critically consider their main ideas and methods? Quantitative, yes or no
- Good? Bad? Is there any work to be done?

- She is a developmental psychologist. Development psychologists are interested in change, e.g. its not about describing how thinking happens, but describing how thinking changes across different points in the lifetime time.
- Because there is so much change in children, a lot of developmental psychologists are focused on childhood, but you can also get them e.g. between teenage and adulthood, or between before having a baby and after.
- But today she is going to be talking about children and some work with adults that the work with children has inspired.

The lecture:

- Part 1: Who I am and what I research
- Part 2: Are children rampant anthropomorphists? – This is the main study for the assessment
- Part 3: Are adults anthropomorphists?
- Part 4: Future directions & applications

ANTHROPOMORPHISM

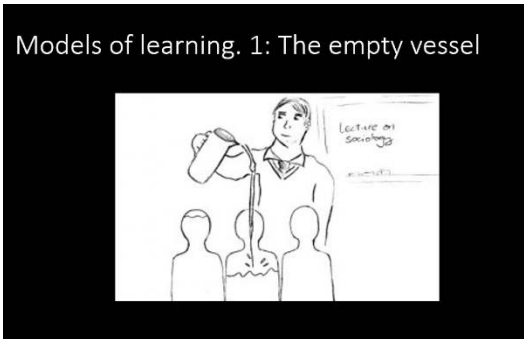
- **Anthropomorphism is the attribution of human like thoughts and feelings to things** (e.g. objects, animals, gods)
- Animals and gods are a bit of a grey area, so Nathalia focuses on objects.
- It is clear that a teapot doesn't have human like thoughts and feelings. So she is interested in why people treat objects – like teapots- as having them.
- Children are a lot easier to study than adults, there are a lot less processes and drivers in between their behaviour and their drivers.
- Children have also had less experience for the environments to change behaviour and confound studying them
- She did her PhD looking at children's '**magical thinking'**. Magical thinking is anything that is different from the way we scientifically understand the world.

Key research questions:

1) How do children come to think like adults? What is it about the way that children think that changes so that they start to think more in the way that we associate with adults.

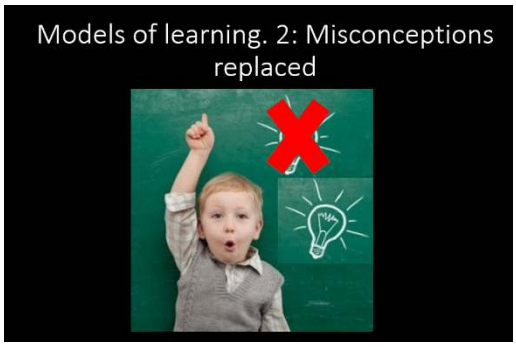
2) Can understanding how children intuitively make sure of the world help us understand why adults act so weirdly so much of the time? A lot of the behaviour that we see in adults, we can already see the starting points off in the way that children are making sense of the world.

MODELS OF LEARNING:



1) The Empty Vessel - the traditional model of learning is that children are empty and in school a teacher will fill them up with all the information they need and send them off.

2)Misconceptions Replaced – The current model of learning is that children come to the classroom with these misconceptions and that teaching replaced these misconceptions.



It is has become evident that children are constantly coming up with hypothesises and theories about how the world works and they are already doing this before they come to the formal education context at 4. There are many predictable cases where they come to the classroom with many misconceptions.

E.g. psychological essentialism , which is understood by very young children, which is that entities can't change. There is an essence within things that make them what they are, and they pass on this essence to their children through inheritance, that's why a horse cant have a pig as a child. This gets in our way of understanding natural selection that species change over time, and species that adapt well can continue to have children and survive. Because psychological essentialism is so strong in childhood and it is not addressed very early on (it isn't taught in school on the curriculum until your 10), that's why things like intelligent design seem to make intuitive sense and why it can be really hard to disrupt the beliefs of people who believe in intelligent design because there institutions have never been directly addressed.

Some misconceptions are learned through environment and culture, but Natalia focuses on misconceptions that are intuitive and consistent across most children.

3) Misconceptions and scientific understanding co-exist

All of Natalia's research has been in establishing her own model of learning over the course of her career. Natalia's model recognises that children are coming to school with these misconceptions but it says that we need to identity them and deliberately target them to show that they are wrong, before we can move on to the more scientific models. But the way they are going it at the moment means that the misconception continues there not got replaced but the teaching just occurs **on the top** of them. So when people have a lot of time to think rationally they use the teaching tand scientific models they were taught, but when people are tried, drunk, sick or frightened a lot of these childhood misconceptions and institutions come to the forefront in driving the way they think about the world.

Antidotally as adults we anthropomorphise all the time - - - e.g.:

- Stock markets are seen as angry or happy
- We name inanimate objects like boats and they mean more to us when they have their own unique and individual name
- We design products to be anthropomorphised, to look like they have faces because we know it makes consumers like them more e.g. henry hoover or mini's

- Often get angry and upset with inanimate objects and it feels like they are deliberately letting us down – the computer has deliberately crashed just when we are trying to get an essay in, or the car has deliberately broken down just when we need to get to an important meeting on time.
- Or people turning around photos of loved ones when they are doing something naughty, they think these inanimate objects are going to cast shame on them
- People do behave better when they have a picture of a pair of eyes looking at them, even thought they know its just a focus. These tiny little cues have very strong, consistent and reliable effects.
- E.g. on Halloween if you leave a bowl of candy and leave a sign telling a child to take just one sweet they often take more, but if you put a mirror up against the bowl they will often only take one because its like someone is looking at them

Children's entertainment:

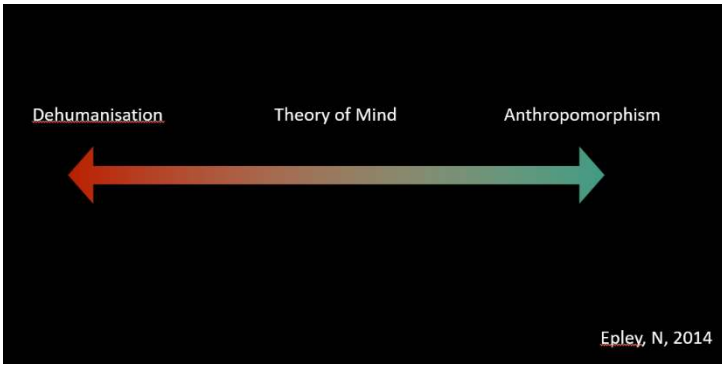
- Anthropomorphism is everywhere in children's entertainment
- When you look at children's entertainment you would think this, it is rare to see a children's film where there is no anthropomorphised character e.g. trains that have names and backgrounds and strive to meet goals, animals with clothes and jobs
- All children's movies are made by adults, so it's not evidence that children anthropomorphise, it is just being thrust on them by what adults think children want

PREVIOUS LITERATURE

- One of the first people to start asking investigating anthropomorphism was John **Piaget** in the 19050's (god of developmental psychology)
- He was wrong about a lot of things, but he was important because he was the first person to talk about them in literature
- He did a lot of studies on anthropomorphism (was he called animism at the time). He did interviews with hundreds of children and talked to them about why they thought things like the sun and the moon behaved the way they did.
- What he found (what the thought he found) was that children are rampant anthropomorphist's, that they anthropomorphise everything around them willy nilly, possible because the only model they have for understanding the world at that point is themselves and because they have thoughts and feelings they assume so does everything else too. And that slowly at around the age of 9 they slowly start discriminating more consistently between humans and non-humans, then when you get to adult hood you don't anthropomorphise any more, you treat objects as objects and humans as humans.
- This was the universally expected way of understanding things

BUT – the current model of anthropomorphism is that it is an over extension of the theory of mind (which is the attribution of thoughts and feelings to other humans, it is a really critical skill for social engagement). We know that theory of mind isn't very clear and consistent within children until about the age of 5, so the fact that younger children will be attributing thoughts and feelings to objects but not humans is quite **odd** because that means they have the cognitive architecture to do that.

At the other end of the spectrum is dehumanisation, which is where you stop attributing thoughts and feelings to humans and you start treating them more as objects (e.g. blacks in 19th century)



Are children rampant anthropomorphists?

- Traditional view (e.g. Piaget):
1. Anthropomorphism is all-or-nothing
2. Anthropomorphism is outgrown

- However:
1. Evidence of anthropomorphism in adults
2. Evidence that young children do not anthropomorphise (e.g. Gelman, Spelke & Mack, 1983)

- There have been a couple of really small studies that go against Piaget's theory e.g. when you just spontaneously watch children playing, they very rarely anthropomorphise the toys they are playing with, it tends to be adults that brings that to the play situation.

- In a very small study by Gelman, Spelke & Mack, 1983 they found that when they asked children about a variety of objects like rocks and dolls, very young children did not get confused and very rarely talked about objects as having thoughts and feelings even dolls which are quite hard because they have lots of humanising features: names, faces and clothes.

- So there is a conflict in the literature between anthropomorphism being the reigning theory and being understood that all children do it and then they grow out of it. But there is evidence of adults anthropomorphism a lot and being important and studies showing that children don't anthropomorphise as much as we think.

There are three possibilities before Nathalia did her research:

1) Children are rampant anthropomorphists - - - Piaget was right and the little bit of research that had been done showing that they weren't anthropomorphising as much wasn't done very well or it was measuring something else

2) Children don't anthropomorphise at all - - - Looking at the theory of mind literature, it is possible that children just aren't capable of anthropomorphising until there about 5 and what Piaget was looking at was something else

3) Children selectively anthropomorphise some but not all objects - - - They are capable of doing it, but they don't do it all the time , they don't do it as much as Piaget or children's entertainment would suggest that they do

This is where Nathalia decided to insert her research…

- She thought the place where a child is most likely to anthropomorphise was with their childhood attachment object e.g. Bobo.

- Attachment Objects (the one object that the child fixates on, they need him to sleep at night, they want to take him into stress situations, they find him soothing, it is very individual they do not want it to be replaced or washed etc.)

- About 70% of children in the West have an attachment object

- Used for self-soothing

- Peak attachment at around 3 years

- Many kept into later childhood and even adulthood, she did a study at Bristol uni and found that around 60% of the first years had brought an attachment object with them to uni.

- Cross cultural- in India the prevelence of having an attachment object is only about 30-40%. The theory behind this is because of sleeping practices, children in the west often form an attachment to something in the cot with them at about the age of 6motns-year when they are moved away from sleeping with their mother all the time during the night and it is a form of findings a social connection when there isn't the mother there and having something in the world that they can have control over as they start to realise they don't have control over their parents. In Asia, children often sleep with their parents until about 4, so there isn't that requirement to have a sort of proxy for the social connection.

- Are attachment objects healthy – there are mixed findings but predominantly yes. In stressful situations e.g. going to see a paediatric, children who have an attachment object with them show reduced levels of cortisol (stress hormone). So it can be really important and helpful for children to have these.

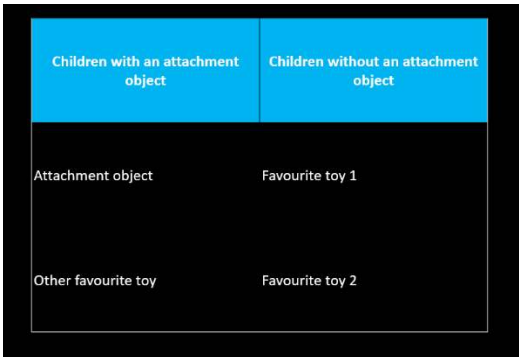
MAIN EXPERIMENT - *Gjersoe, Hall & Hood (2015)*

They run the study 4 times before they ran this version of it in 2015. But the pattern of results was always the same (HIGH RELAIBILITY!!!)

Hypotheses:

1. Young children will not generally attribute thoughts and feelings to their toys (Against dominant theory at the time)
2. However, children will attribute more thoughts and feelings to their attachment object than other toys they own

In the 2015 version:



- 30, 3 year olds
- Half had an attachment object and half didn't. They established this by a parental questionnaire which asked a range of questions on which they related how attached a child was to an attachment object. They had to score above 8 on an attachment score in order to be in the attachment group, and the non attachment object group had no attachment at all. **Two completely distinct groups**
- All children brought in 2 toys from home (familiar objects = high ecological validity. All the previous studies had been done on objects that weren't personally relevant to the children)
- Children who have an attachment object brought their attachment toy and an other favourite toy, children without an attachment just bought two of there favourite toys.
- All of the toys brought in had to have faces on (humanising features, couldn't bring in blankets)
- Forced-choice behavioural experiment (Means children **had** to make a choice between two options, you couldn't say both or I don't know)

Critical – how do you operationalise what is an attachment object and what isn't. Nathalia defined it as something they had become attached to around the age of 1 and the parents aren't a questionnaire on a range of scales including how much do they care if you take it away, how much do they care if they loose it, how much do you care if they wash it, how many nights per week does the child need to have the attachment object in order to be able to sleep, how often does the child ask for the attachment object in stressful situations. There was a whole range of scales which operationalised what was an attachment object was on a scale from one to ten and what wasn't. But the key thing was that it was one object rather than a range of objects and they use it for self-soothing

METHOD:

- The study is really really simple, because it needs to be because they are working with 3 year olds. You need to be really careful in the way you design studied for these children because they have short attention spans, they get very easily distracted and they don't have very high linguistic capacity so it is difficult for them to tell you how they are feeling.

- **Critical** – might be better to have quantitative results from children because its not like you are going to get loads of rich information from having in-depth discussions with them.

- They had a series of pairs of photos- and each pair was a living animal or a stuffed toy.

- For each pair there was a scenario. So they would point at the living animal and ask 'If I leave this one in a box for a long time it will get lonely'. And point to the stuffed toy and say 'If I leave this one in a box for a long time it will get dusty'. **So the living animal always reacted mentally / emotionally and the stuffed toy always reacted physically.**

- They had a control study where they had two objects that weren't at all confusing e.g. a boy and a pillow. Then they asked about the boy and the pillow and whether they would get dusty or lonely.

- **The 3 year olds all have a ceiling effect – all of them got all of the answers correct. They all said the boy would get lonely and the pillow would get dusty.**

- This demonstrates the nature of the experiment works for this age group, they understand the instructions and how they are supposed to respond in an appropriate way to these questions

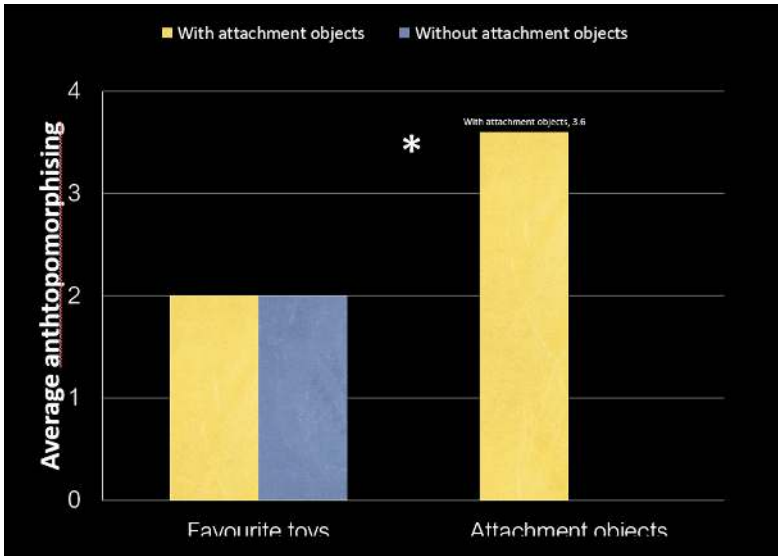
- Having established this , they ran the experiment with attachment objects and favourite toys, asking if the attachment object would get lonely or dusty and if the other toy would get lonely or dusty.

- All the children had to do was point, it wasn't relying on a lot of verbal ability, really simple task

RESULTS:

- The blue bars are the children who had no attachment object. The children had just brought in 2 of their favourite toys that they liked playing with that had faces.
- The results were equivalent between both of the toys they brought in so have been collapsed into one bar.
- They found that there is some confusion between whether the have thoughts and feelings or not sometimes they say they have thoughts and feelings but sometimes they dont, but it is not significant. This is not surprising because these toys are familiar with the child and they are used in imaginary play.

- **BUT!** Children with attachment objects it is very different.
- For the toy which the child with an attachment wasn't attached to, they had exactly the same amount of confusion as the children with no attachments.
- However, with their attachment objects they were consistent in saying that they had thoughts and feelings. And the children were significantly more likely to say that there attachment object had thoughts and feelings than there other toy they through it.



Conclusions:

1) Young children are <u>not</u> rampant anthropomorphists:

   They are not anthropomorphising everything, even some of the really confusing toys they they have which have faces and names and things.

2) Young children <u>can</u> anthropomorphise:

Children do have the ability to anthropomorphise. Its not like theory of mind where you cant till your 5, even three year olds are capable of attributing thoughts and feelings.

3) Young children selectively anthropomorphise attachment objects but not other favourite toys

This conclusions are very different from the Piagetian models that they had been working with

Critique - positive

+ New, age-appropriate method with consistent results (we replicated the pattern 4 times before the published version)
+ Fun and short for very young children (low drop-out rate)
+ Good inter-rater reliability. People who didn't know what the research questions were, what the conditions or the groups were looked at the videos of the children choosing and had exactly the same rating of what the children had chosen.
+ Used objects they were familiar with (attachment toy and own toys), higher ecological validity than all the over literature in the field which all used random toys from labs that the children didn't have connections with
+ Calibrated attachment strength with parental report as good internal check

Critique – challenges:

- Children weren't given a "both" option. If they did it again they would probably give them options more than just a binary.
- Pattern not as clear for attachment blankets. They did the study with children bringing in an attachment blanket and a favourite toy and the children still attributed more thoughts and feelings to the blanket than they did the toy, but the pattern was as clear than as for attachment toy.
- Do children <u>really</u> anthropomorphise their attachment objects or act <u>as if</u> they have feelings? It's a really tricky thing to know. Are they really experiencing their attachment objects having thoughts and feelings or are they just acting as if they do.

Remaining questions:

- Do children grow out of this anthropomorphism naturally?
- Is anthropomorphism replaced by scientific thinking?
- Do adults simultaneously maintain anthropomorphic tendencies with more scientific models?

These questions led on to the next set of studies (NOT THE MAIN STUDY) that is looking at adults:

- They need to try and get access to unconscious processes
- So they did a study where they hooked adults up with a galvanic skin response recorder – this measures changes in arousal – they needed to use their hands so they strapped up their feet.
- They asked the adults to cut up photographs of some of there things:
  - There phone (no arousal)
  - A teddy that didn't belong to them (no arousal)
  - Pictures of sentimental jewellery e.g. their wedding ring (no arousal)
  - Pictures of their attachment object or a loved member of their family – **a really big arousal**!!

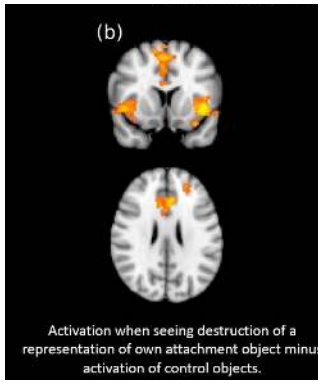
And the arousal for cutting up a picture of their family was pretty equivalent to cutting up a picture of their attachment object. So at a subconscious level these objects still seem to be treated in a very distinct and special way even in adults

They carried on and did a further studying using fMRI…

- They asked people to bring their phone and their childhood attachment object into the lab.
- They filmed a pair of hands putting the objects into a box. Then they edited it so it looked like they took the box with the teddy outside and destroying it in a range of really violent ways e.g. set it on fire with a flamethrower, ran over it with a truck, blew it up with fireworks.
- They played all of these videos to the people on loop when they were inside the fMRI scanner.
- **CRITICAL** – ETHICS MAD!! But people were told that these objects were actually fine, they had given them back to them before they went into the scanner and told that these were just edited videos
- They were trying to tap into the unconscious
- They looked at where in the brain was activated when they saw these boxes being destroyed.
- This comes back to the 3RD MISCONCEPTION that we talked about that childhood misconceptions and the sceifntic understandings that we are taught at school co-exist. That although adults are taught to be rational and scientific etc. consciously they know that there objects aren't in these boxes , but the unsc ousy driver as still there under the surface.

Results:

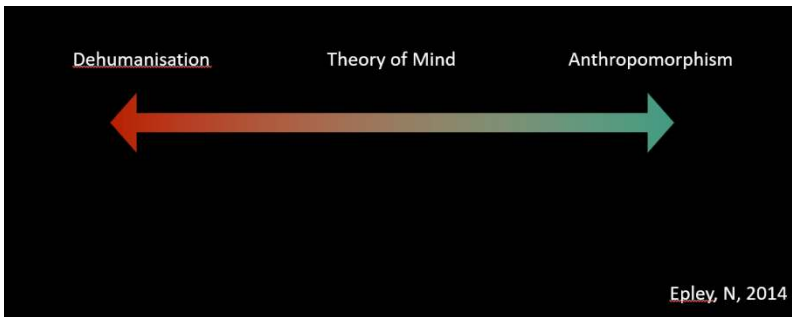
- A model of supernatural belief?
- When you take away all of the activation in the brain, apart from the bits only activated when the attachment objects are destroyed, **they found activation in the frontal lobe in the area called the insular**. The insular can fire for threat detection, they found more of this firing when the attachment objects were being destroyed more than any of the other objects. It wasn't to do with it having a face, because they didn't react the same for a teddy bear that went into a box that wasn't there, and it wasn't for familiarity because they didn't have the same reaction when it happened to their phone
- They also found really high activation in the polar frontal regions, these do loads of things, but one of the things they do it suppress the activation of other parts of the brain and that helps us to focus on what is most relevant in a situation.
- We can see with the insular threat detection that these childhood biases and ways of thinking about the world are there, however we suppress these ways of thinking, because we know that it isn't real and that our objects are fine, but at some level we are experiencing the threat.
- Support for hypothesis that cognitive biases are not outgrown.


(b)
Activation when seeing destruction of a
representation of own attachment object minu
activation of control objects.

Future directions and applications

- This research has really brought this theory of mind belief in to contest. Because children are anthropomorphising but not able to do theory of mind. So perhaps theory of mind isn't as directly linked to anthropomorphism as was previously thought.

- Natalia is doing now research looking at children with Autism. Research suggests people with autism anthropomorphism a lot MORE than people without autism but theory of mind is thought to be disrupted in Autism – so it is possible that this link between theory of mind is under question.

- 

Anthropomorphism also has really strong links with loneliness. They know that people who are chronically lonely anthropomorphism a lot more, with animals but also objects around them. They also know they can experimentally induce loneliness, if you make people feel excluded in a experiment and then after give them a choice between an anthropomorphism food (e.g. m and m's) and a non anthropomorphised food , people who were made to feel lonely are a lot more likely to choose the anthropomorphism food. So, people use anthropomorphism to make a feeling of social connection when we feel like it has been lost a bit.

- So maybe a reason that people with Autism are anthropomorphism a lot is to address loneliness.

- They are looking at how they can use things like robots to increase social skills and social connection, by building in this anthropomorphism as a social tool

- Looking at people with a hoarding disorder – because people with hoarding disorders often have a distributive relationship with objects. This could be linked to anthropomorphism and giving thoughts and feelings to objects so you don't want to throw them away. This could be down to isolation and a lack of social connection.

- But the problem with hoarding disorder is that it often isn't recognised until a persons house is completely full of stuff and this doesn't happen until about 50. And at this age the behaviour is often so engrained that interventions are very unlikely to be successful.

Neil Hinvest
(neuro-economics)

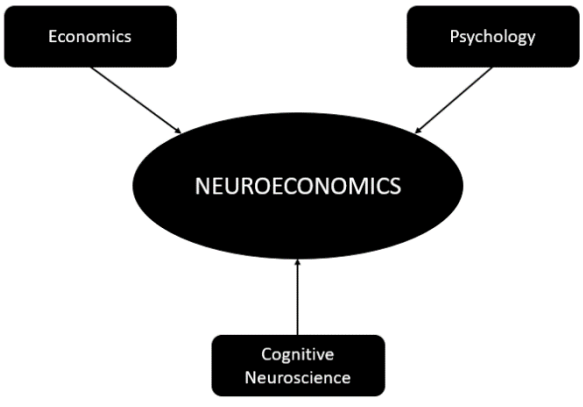
WEEK 4 NOTES LECTURE 19/10/2020 – Monday

Neuroeconomics - Dr Neal Hinvest

- Experimental methods to model human cognitions and behaviour

- 1 reading on Moodle to make notes on: https://moodle.bath.ac.uk/pluginfile.php/770947/mod_resource/content/4/Hinvest2014.pdf - fMRI Evidence for Procedural Invariance Underlying Gambling Preference Reversals
- Can you summarize their main area? Neuro-economics
- Do you understand their main methods?
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?

My research area



- Neil's area is neuroeconomics. So it's a interdisciplinary topic that integrates between psychology, economics, and a lot of neurobiology and cognitive neuroscience
- Neil is interested in decision making, why people make the choices they do

- Both psychology and economics both want to understand why people act in the way they do

Where has neuroeconomics come from?

- Economics is good at establishing clear models to predict behaviour. And psychology is good at explaining individual differences and how not everyone will behave in that way.
- So, working together than can make models that can predict more realistic human behaviour.
- The neuroeconomics fields generates 'biologically plausible models of human decision making'. Because they look in the brain and see how in a certain situation , these are the bits that are working and how all the information is broken down and processed in the brain and see how it is pulled back together to create observable outward behaviour. These models replicate what is going on in the brain
- The ultimate aim of neuroeconomics is to create nice neat models that can be used to predict human decision making behaviour .
- You can take the principles of neuroeconomics and apply them to all sort of areas in psychology, clinical, health etc. because everyone has to make decisions.
- Behavioural economics started in the early 90's and neuroeconomics started in the mid 2000's
- Traditional economics assumed "homo economicus". Need to be a robot. Everyone should use all the information they have to make decisions, they shouldn't favour some things over others, they shouldn't have any biases etc.
- Behavioural economics integrated psychology and economics

A few examples from other people in the field that was seminal

Examples of neuroeconomics: buying and selling

- Knutsen et al. (2007). *Neuron, 53,* 147-156.
- They looked at what happens in the brain when you are buying and selling something
- They found evidence for what they call a 'endowment effect'
- They saw that the areas of the brain involved when making a buying decisions, the same areas of the brain show differentially activation than if you are selling. There is more activity when people are selling things than if they are buying something.
- Someone is asked how much they would buy a cup for, they then get given in, and told how much they would sell it for. When you are selling it you have more activation, they think that it because you have a heightened evaluation of the cup because now you have it it is worth more to you so it has led to heightened activation and a change in your decision making.

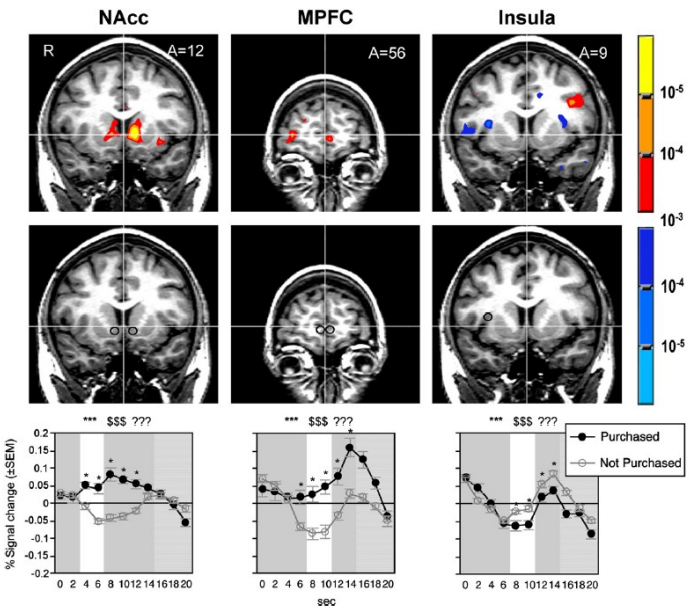


Figure 2. Correlated Activation, Volumes of Interest, and Corresponding Activation Time Courses
(Top row, left to right) Conjoined correlations of NAcc activation with preference during product and price periods; MPFC activation with price differential during the price period; insula activation with decision to purchase during the choice period (n = 26). (Middle row, left to right) Volumes of interest superimposed on structural images of the bilateral NAcc, bilateral MPFC, and right insula. (Bottom row, left to right) Bilateral NAcc activation time courses for trials in which products were subsequently purchased versus not; bilateral MPFC activation time courses; and right insula activation time courses (white, predicted divergence; ***, product period; $$$, price period; ???, choice period; all lagged/shifted right by 4 s; n = 26, *p < 0.05; error bars = SEM).

Individual differences in temporal discount rates + brain activity - Kable & Glimcher (2007)

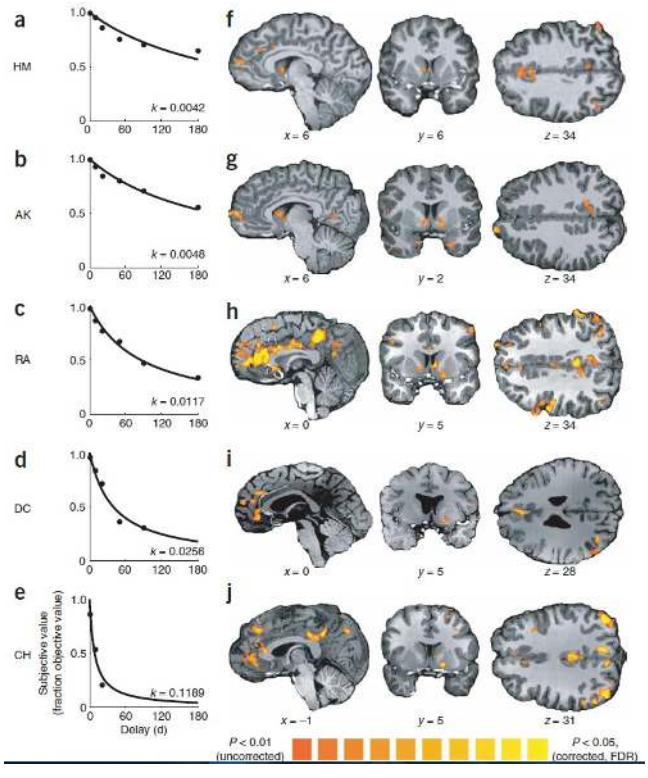
- Discount rates and brain activity from five different participants
- HM = one of the more patient participants
- CH = one of the more impulsive participants
- Temporal discounting is the rate at which something is devalued e.g. there is a delay in acquiring that particular stimulus. Depending on how long you have to weight for something, will effect how valuable you think it is. How an item devalues as the period that you have to wait for it increases.
- Its like delayed gratification – you can have this amount of money now, or you can wait a bit and have this about of money later which is bigger. They is a trade off between delay and reward. Some people might have lower temporal discounting, so it is still important with time so you could rather have the £15 in 2 months rather than £10 now because it is 5 more £.
- This can be linked to myopic choice tendency- you are more likely to choose a short sighted immediate reward

- The graphs show the discount rates. Where it is flatter, it means you are more able to wait. On the Y axis you have the value of something, so the higher it is more value you ascribe to it. And the X axis, you have delay from 0 (you can have it now) to 180 days.

- HM – They have a flat discount rate, so as the delay increases they still show quite a high evaluation of it so they are more able to wait.

- CH- As soon as there is a little bit of delay, there discount rate plummets , there is a significant devaluation of that particular stimulus as the delay increases.

- That's associated with differences in the activation of areas of the brain associated with decision making around temporal discount rates. They show a difference in the activity of the brain which is associated with a difference in the observable behaviour, your ability to wait and show self-control



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fMRI Evidence for Procedural Invariance Underlying Gambling Preference Reversals

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Preference reversals (PRs) occur when one's preferences over the same items change depending upon how one is asked to construct a preference. PRs are a robust phenomenon that lead to suboptimal real-world decision making. Despite this, it remains unclear why PRs occur. This study investigated whether biological procedural invariance (i.e., different procedures are associated with different underlying mechanisms) could elucidate why PRs occur. Seventeen participants were scanned via functional MRI (fMRI) while (a) expressing preferences between 2 probabilistic wins or 2 probabilistic losses (1 high and 1 low magnitude) and, (b) reporting a monetary amount (valuation) according to how much they wanted to sell a potential winning gamble for or how much they would pay to forgo a potential loss. Participants' valuations closely followed expected value. Choice behavior, however, was more prone to bias because of unequal weighting of either magnitude or probability. Preference formation during both valuation and choice was associated with fronto-parietal neural activity. Within this system, valuation was associated with greater activity in dorsolateral prefrontal cortex and caudal anterior cingulate cortex, while choice was associated with greater activity in the insula, horizontal inferior parietal sulcus, posterior cingulate cortex, and somatosensory cortex. The combination of behavioral and neuroimaging data may suggest that participants used a mathematical approach to formation of valuations but choices were subject to emotional influence. These findings may provide support for a biological procedural invariance view of gambling preference reversal. These findings are difficult to accommodate within explanations that rely on modifications to expected utility and prospect theory.

Keywords: preference, neuroeconomics, fMRI, choice, emotion

- a This is paper that Neil and his colleagues published 2014 looking at gambolling preference reversal.

- Gambolling preference reversals are just when you change your mind. Your asked a question and you answer, and later you are asked the exact same question just phrased in a different way but your answer is different because of a different phrasing and FRAMING of the decision.

- The two decisions were the same so Neil wanted to see if the brain activation was the same of different and if it was different, what does it tell us about decision making processes that are occurring.

- They providing individuals with gambolling choices. E.g. you could win a £100, how much would you pay me to play that gamble. There's £100, there a 60% change of wining so id pay you £10. You now have a 20% chance of playing for £200, how much would you pay to play the gamble. The one which is the highest and the one they have the highest chance of winning they should play the most for.

- Then they put the two options together, you can choose to either have a 60% change of winning £100 or a 20% change of winning £200. In about 50% of cases, they would change their minds, the option that they said that would spend the most on in the first question, they would switch to the other one.

- They found that regardless of asking people separately or integrating the two questions together, the same areas of the brain were being active. They were decision making processes of the brain and mathematic places because people were dealing with numbers.

- He used blurred oxygenated level dependent response in fMRI (the blobs).

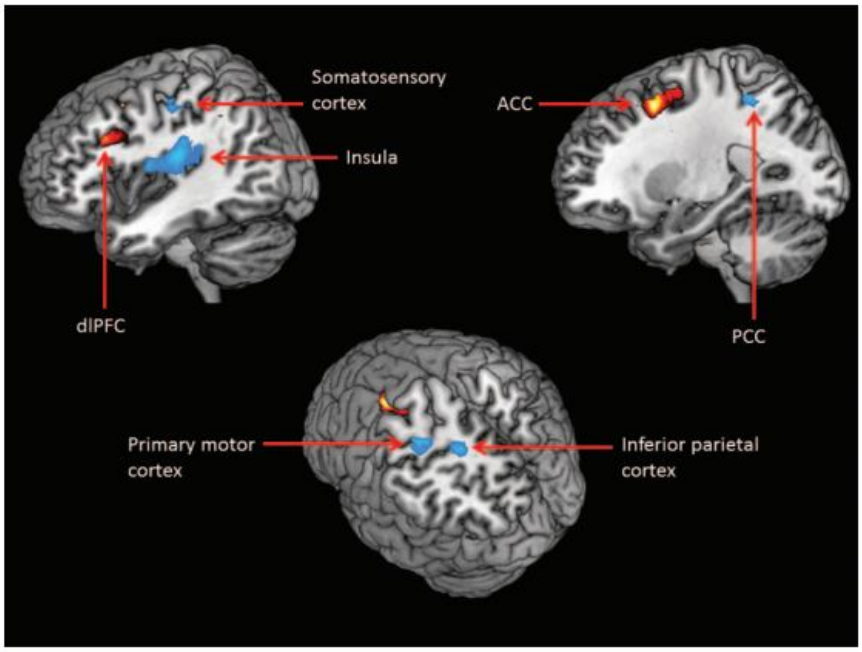
- The took the signals from when you are asking people the questions together or apart and subtracted them from each other. So, it cancels out the things that were going on in both scenarios and leaves you just with the DIFFERENCE in brain activity between the two conditions. Because the conditions are very highly controlled, you know that the blobs you are looking at is due to what you are looking at.

- They compared the brain scans of people when they are asked the two questions apart or together. There are differences. The areas in red are the ones showing more activity when they are apart, the blue areas how more active when they choices are together and they are making a choice between the two.

- The areas in red were more associated with mathematic higher order processing and integration of information. The areas in blue were more associated with emotion , risk processing.

- They concluded that there is something different going and your brain processes things in a different way even though it is the same information

- They can quantitatively give numbers that say although it is the same choice, different frames are processes differently within the brain. Therefore, within models if needs to take account of these things.



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Neural correlates of choice behavior related to impulsivity and venturesomeness

Neal S. Hinvest*,[1], R. Elliott, S. McKie, Ian M. Anderson

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This is another paper by Neal:

- It looks at impulsivity and venturesomeness in individuals who were drug users and sub-pathological gamblers.
- They showed behaviours impulsive type behaviours.
- They looked at their impulsivity and delay discounting, their ability to withhold the immediate response (cave man I want this right now)
- One feature of many of theses disorders e.g. drug using and gambling is a greater level of impulsivity, and a lack of being able to without the impulsive response and wait for something. I could have 1 gram of coke now or have 2 grams in a month. Or you could have 1 gram of coke now, or wait and have improved health and wellbeing.
- They were looking at areas of the brain when they were making these decisions around risk and reward, and showing that there is differential activity in the brain – there are individual differences.

CURRENT PROJECT: Mapping the 'shared brain'

- Neil is looking at the ideas mapping the 'shared brain'.
- When two people meet for the first time and get to know each other you might build a 'social identity', we are know a group because we share things e.g. similar ideologies or likes. The two people are then an 'in group'. They decided who are the other members within that group, who are the outside members etc.
- Humans are social beings and we all define our identity based upon our ingroup versus outgroup perceptions. You see how your identify influences the in group and how the ingroup influences your identity e.g. how I behave, what are the norms of behaviour I should express.
- They are interested in the building of that bridge. They are trying to identity the point at which the social identity is built on a neurological level.
- Multidisciplinary project
- Mapping the development, within the brain, of a shared identity with another person
- Tajfel (1981): shared identity is built on shared emotion
- This could be used in a business meeting situation e.g. everyone wear the headsets in a meeting and then someone has see when someone is experiencing certain negative emotions and tell call for a break etc.

Neural signals of "sharedness"

- Anders et al (2011). *NeuroImage, 54,* 439-446
- It is based upon the idea that there are brain areas that evidence 'sharedness'. There seems to be areas of the brain associated with theory of mind and effect when you are having a share experience with someone else.
- They know at the point when they started whether this activation was present because they just has responses to watching the same thing or it was something higher order etc.

- Neil used their new **EEG** tech to do this:
- They wanted to have an objective measure of what people were feeling at any point
- The theory with sharedness is that it needs an emotional connection e.g. your at a football match and everyone around you is cheering.
- They also have people wearing these '**emotive headsets'**. Two people wore the headsets and then interacted with each other and they tried to identity whether in the conversation when then social identity bridge was formed and if there was some kind of trigger or mechanism that was associated with the trigger in the brain.

What did they find?

- T**HEY DID find particular signals which indicates fairness, but there really really really hard to find**. So they cant reliably identify when it is happening, they need more work to try and figure out what it is and get it to a point where you can identify it.
- We can predict (to a particular accuracy) what emotion you are feeling via EEG
- "Sharedness" can be evidenced via EEG

ANOTHER NEIL PROJECT LOOKING AT EMOTIONS IN TRADING BEHAVIOUR

Investigating the role of anticipatory (non-conscious) emotions in trading performance

They gave people a trading simulation where they can see the share price of a company. When they were winning and loosing money they asked people how they were feeling and also measured their galvanic skin response to show they level of UNCONSCIOUS arousal.

Variants:

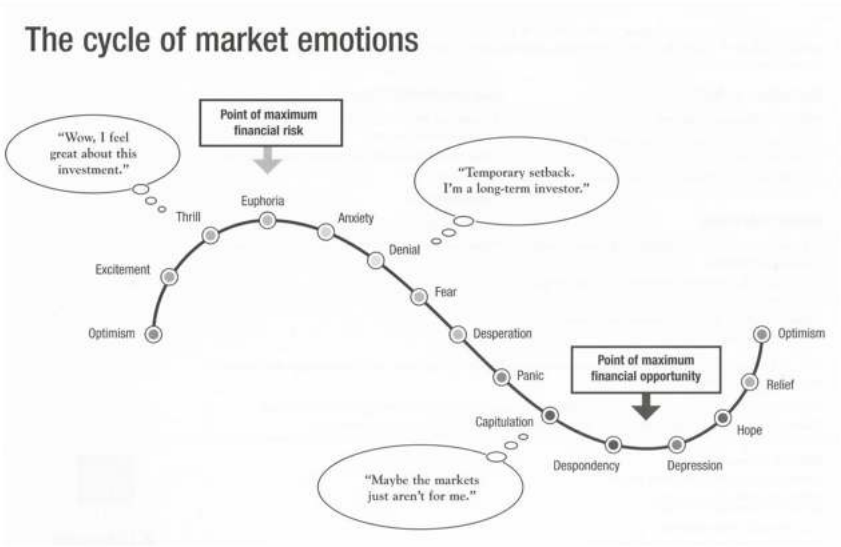
- The effect of nudge - gave people nudges to social/financial mindsets
- The effects of mindfulness
- Social investing - changed it so instead of money they were generating social wealth.

The research was based on the **theory of Emotional Trading**:

It was based upon this theory that in any market, human emotions account for the vast majority of the up and down swing in any particular share price.

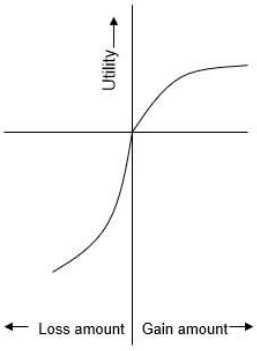
They found that peoples emotions really did impact upon their behaviour.

The theory of Emotional Trading: Taffler & Tuckett (2019)



It was also based on **prospect theory** (Kahneman & Tversky (1979) :

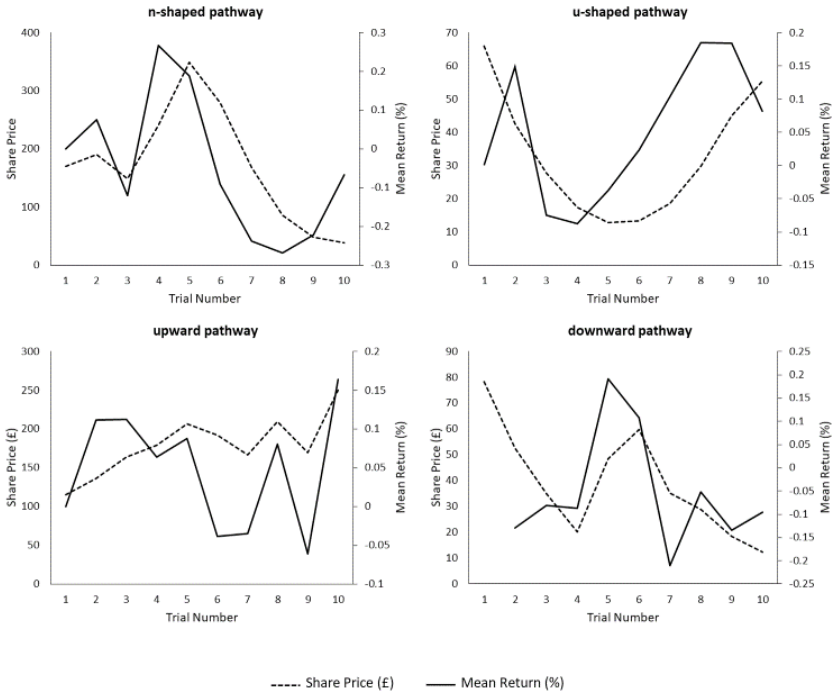
- Gain and loss amounts don't effect your decisions equally. If you are doing well and making money, you are less likely to make big decisions because you have got a lot of money, but if you are loosing money drastically you are more likely to be more gregarious in order to try pull yourself out of the dip
- Unequal weighting of gains and losses
- People are risk-averse with losses but risk-seeking with losses
- 50% of people would not play a bet that involves an equal chance of winning £200 or losing £100 as the pain of losing £100 is greater than the pleasure of winning £200
- Even though the expected value is (0.5x200)-(0.5X-100) = 50 (a positive value)



NEILS METHOD:

30 students

- We gave people difference share prices (four different conditions) which you can see is the dotted line. The black lines are how much money people are making as they go through the game. So some games people do very well, and some games people do badly.
- They measured their Galvonic skin repsones using the 'BIOPAC' equipment which measures all sorts of psychophysical measurements e.g. heart rate



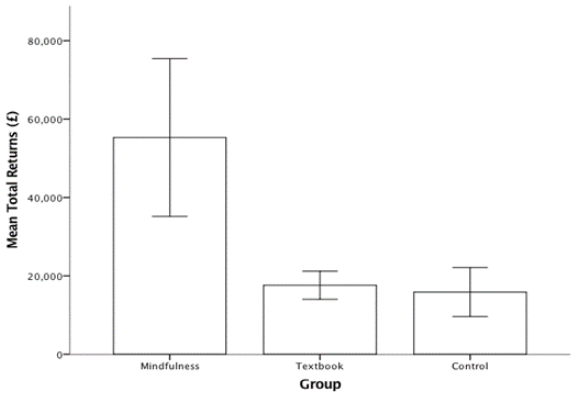
Our findings:

- They found that this level of **'anticipatory emotion'** (the emotion that you feel on an unconscious level, that is imbedding within what decision making strategy that you are engaging in, it's the emotion associated with what it anticipated to happen)
- **The impact of 'anticipatory emotion' on your behaviour depending on whether you were winning or loosing money**. Dependent if you were winning or loosing, heightened levels of unanticipated emotion would push you to be more risky or less risky.
- So there is no clear rule, it is dependent upon the context of the trading environment
- The galvanic skin response is just you are having that response , its not saying what or why, it could be you are competitive, scared, it could be that you've just realised you've run out of loo roll
- **KEY- non-conscious emotion and behaviour go hand in hand in risk related choice, but its not a clear cut relationship.**

They are now continuing this work and trying to break down in what sort of environments does heightened emotion cause a positive change (make more money) versus a positive change:

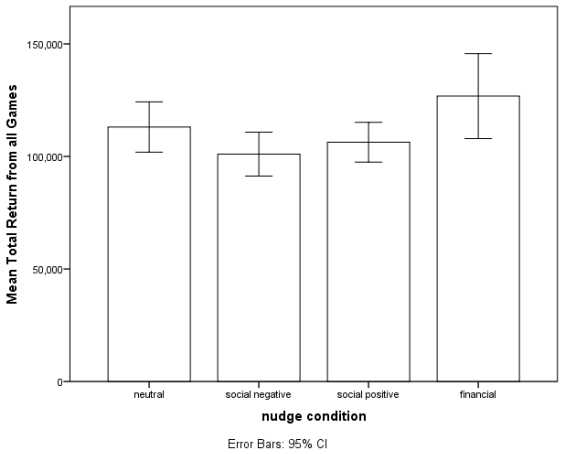
E.G. Emotion regulation training:

- Mindfulness is shown to improve decision making on a broad range of topics.
- 45 students took part in the same trading simulations - - - but they listened to 5 minutes of basic breathing mindfulness exercises or they listened to the same from the mindfulness person reading in the same tone out of a geography textbook, or nothing.
- They found - Mindfulness= more money
- They found that the mean returns (the amount of money they were making) was the same and standard for the control and textbook conditions, but for the mindfulness group the amount of money that they made raised significantly.
- So mindfulness seems to improve decision making ability within the games, so you can make more money



Nudging Trading Behaviour:

- They put little images up as they were playing the game and they were neutral (pictures of tools e.g. hammers, that would give people a neutral response), they gave social negative images (images that have a social connotation that are distressing to a certain level e.g. outcome from earthquake, people huddling round a destroyed home crying), or social positive (e.g. really happy African children in a school) or financial (e.g. big yachts or houses)
- When you are given a financial nudge, those people make significantly more money compared to if you get a social nudge



- You can change the way people do on the task just by putting 3 tiny little images in the corner of the screen while they are playing a task.

- **CRITICAL** -We studies in the lab are all lab based so have limited external validity. For a lot of the observations about risk, reward and the decision making tradeoffs, we study them in a lab so we can get empirical and precise measurements of the mechanisms, but these are generally broad observations that we do see in the real world, they do have external validity.

- They break things down in a lab so we can understand them, but then they build them back up outside the lab. NEUROECONMICS DOES TAKE A REDUCTIONIST PERSPECTIVE – they take a bigger issue and break it down to their individual mechanisms, and then see how these things integrate and build up into larger scale behaviour.

- Decision making is really really difficult because you can make decisions super quickly without even realising you are making them and there are so many mechanisms at play, so it is really difficult to peel these back and understand them. But they break things down to a tiny level to understand them, do there experiences and then bring them back to the larger scale behaviours and make more sense of them.

Leda Blackwood
(social and
political psych)

WEEK 4 NOTES LECTURE 23/10/2020 – Friday

Evidence-based and Political Psychology - Dr Leda Blackwood

- Two PDF papers left on moodle to make notes on: 'Flying While Muslim': Citizenship and Misrecognition in the Airport Leda Blackwood*, Nick Hopkins, Stephen D. Reicher https://moodle.bath.ac.uk/pluginfile.php/1637776/mod_resource/content/2/375-3005-6-PB.pdf

- I know who I am, but who do they think I am? Muslim perspectives on encounters with airport authorities Leda Blackwood , Nick Hopkins & Steve Reicher - https://moodle.bath.ac.uk/pluginfile.php/1637786/mod_resource/content/1/I%20know%20who%20I%20am%20but%20who%20do%20they%20think%20I%20am%20Muslim%20perspectives%20on%20encounters%20with%20airport%20authorities.pdf

- Can you summarize their main area? Identity and Muslims experience of airports

- Do you understand their main methods? COMPLETELY QUALITATIVE!

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

- Blackwood, L., Hopkins, N., & Reicher, S. (2013). I know who I am, but who do they think I am? Muslim perspectives on encounters with airport authorities. *Ethnic and Racial Studies*, *36*(6), 1090-1108.

- Blackwood, L., Hopkins, N., & Reicher, S. D. (2015). 'Flying While Muslim': Citizenship and Misrecognition in the Airport. *Journal of Social and Political Psychology, 3*(2), 148-170. doi:10.5964/jspp.v3i2.375

- Blackwood, L., Hopkins, N., & Reicher, S. (2016). From theorizing radicalization to surveillance practices: Muslims in the cross hairs of scrutiny. *Political Psychology*, *37*(5), 597-612.

BEING A SOCIAL (POLITICAL OR COMMUNITY) PSYCHOLOGIST

Leda is a social psychologist and she has a particular interest in identity.

…interested in questions such as:

- What is the role of social identities and status in how we are shaped by the world and how we in turn seek to shape the world?
- We are all born into different groups with different statuses e.g. race, class
- How can we explain intergroup processes of conflict and intra-group processes of leadership and influence entailed in social change?

…whose research approach involves:

- Conducting research in the 'messy world of reality' – that doing experiments in labs doesn't really reflect the real world e.g. experiencing discrimination on a daily basis
- She uses mixed-methods (Quantitative and Qualitative) – sometimes she uses surveys, interviews, observations, and more creative methods

Leda is talking about one main piece of research today

- This research took place around 2005/6
- She was invited by the Scottish Institute of Police and Research to do some work on the relationships between authorities in Scotland and the Muslim community
- This was at a time when there was a lot of tensions within Muslim communities because 'Special Branch' , under instruction from the home office, were being told to go around and to do a lot of visits with mosques and Muslim associations on University campuses.
- Before Leda even starting designing the research she spoke with leaders in the Muslim community so they knew who she was to reduce anxiety so they wouldn't feel under surveillance or under threat

Leda's Research

- Leda designed a piece of '**Ethnographic Research**' – Ethnology is research which is within a cultural context and its qualitative

- The research is all about **Muslim encounters with authorities**: What encounters are significant? How are these experienced? Are issues of identity implicated and if so how and why?

- *It involved Leda doing observations of police-Muslim encounters; attend Police-Muslim meetings & joint-exercises; Prevent interventions (Act Now and WRAP); Protests (pro-Palestine; UAF and SDL*

- 'Everyday ethics' in community based research- really important. Based on a relational model of ethics and having to think carefully about all of your relationships and all of the ethics of them. Honesty, transparency and integrity are all key points.

- *Semi-structured interviews and focus groups*

- *Interviews are very good tools to generate rich data around individuals experiences*

- *Focus groups are helpful in bringing people together to see where a consensus is and the differences between people.*

The insider / outsider research – both have things that you need to be careful of.

- Leda was an outsider as she is not a member of the Muslim community. Leda was even more of an outsider because she wasn't British, and that might have helped in terms of people feeling comfortable telling their stories to her.

- The advantage of being an insider can be that you are trusted more and have a better repour more easily. She has a PhD student who is black and doing research on black students experiences, being an insider is invaluable because she gets really really rich data people feel a lot more free.

- But there are problems with being an insider researcher. E.g. people can just assume that you know stuff and so they don't elaborate as much. And that communities themselves can be divided so there might be a sense of you might judge me for saying this, so in that case being an outsider can be better.

METHOD:

- Semi-structured interviews & focus groups
- N=55- 6 women and 32 men. This was probably because a lot of the requirement was via the Mosques.
- It also tended to be an older group – the age group was 19 to in their 60's, but the vast majority of people were in their 40s, 50s and 60s.
- Leda wanted a diverse sample
- Leda didn't want to be able to make any inferences about the incidence of particular kind of experiences. What she was more interested in was the range and kind of experiences people might be having that were meaningful and the diverse ways that people mind understand and make sense of those kind of things. It was more about understanding the phenomena of peoples experiences rather than people able to say this is what is happening to most Muslims etc.
- Leda was very careful **not to make any assumptions** - elicit both good & bad stories. E.g. she didn't assume what kind of authorities people might have problems with – she would just ask people to tell her about experiences they had had with authorities in Scotland, it could be police, teachers, doctors or whatever. Let them know they can be good experiences, or bad experiences, you can tell as many stories as you want etc.
- Don't come in with the assumption that there is a problem, because there might not be a problem or you might look in the wrong direction
- **Diverse sample** of community leaders, business people, Mosque elders, and youth
- Iran, Iraq, Nigeria, Pakistan, Palestine, Saudi Arabia

What did Leda find?

- **Broadly positive** view of Scottish authorities and a good relationship with the Scottish community.
- There was a very particular sense of a specific **Scottish Muslim identity**, there was a sense of people being very different to England – that there are problems with England but Scotland is very different from England. Scotland has a big sense of community and inclusion
- **Mixed experiences** of police specifically in communities.
- What came through really clearly and kept occurring, was the narrative of

A 'Muslim airport story' …

- This then became the part of her data which she focussed her analysis on. She looked at that particular experience because it seemed to be very important and very consequential to how people are feeling about relationships with the authorities in Scotland.
- People were having multiple encounters with authorities, even within the same journey. Leda later on did research in an airport and saw at just how many points during your journey you can get stopped by the police, special branch, behaviour detection officers, airport agencies, by customs people, people at immigration even on a single journey.
- The Muslims were talking about a sense of anxiety whenever you would go to an airport because you were anticipating it, it had become a taken for granted thing and if it didn't happen you were surprised about it. People talked about changing what they wore, how they talked, what they carried. They were trying to get to an airport and slip through without being noticed. They have a feeling of all eyes are on them – the authorities but also other passengers.
- She limited the data set to everything that is about airports and went through an iterative coding process. Iterative process of coding and theme development keeping to meaning given by participants (Boyatzis, 1998)
- Greater stopping of Muslim people and greater Muslim anxiety has been quite consistent since 9/11
- After every terrorism event it will have impacts on the Muslim community, women will stay at home for months because they are so scared to go out on the streets because people might look at them or say things to them and they fear for their safety.

- Airports identified as prototypical negative experience (Instantly recognized, taken for granted, frame understanding of other experiences)

- Leda does not start with an aim or a set of standardised questions to ask. She started this piece of research really open, you don't want to start with assumptions and questions.

- You do your really open interviews. Then you go through and code absolutely everything ,and get the meaning of what everything is. Then you try to find a way to organise those codes and then iteratively you go over and over the data until you feel confident in what it is you are looking at is theoretically grounded. You don't just look at similarity, you look at nuance and the different ways the people might make sense of something. It takes months and months to do this.

"But I am British"

- Leda is very interested in identity and that is how her theoretical lens will influence what it is that she is looking at.

- This is a comment from a young 20 year old man – *"I understand where they're coming from, but this is my home. When I get singled out, I know who I am, but who does he feel I am?"*

- This was when he was coming home to where he lives (Scotland) and he got stopped while going through Glasgow airport. So the man has a really strong Scottish identity.

- Within government strategy and literature, you will often see the assumptions where the problem is often with other people (they have weak or poorly formed identities or confused identities.)

- But this man raises that he does know how he is and he does have a strong sense of identity, but its about how the authorities see him.

- Someone can only identify with a group is another member of that group recognizes them as a member, particularly those who are prototypical of that group and most powerful in terms of people able to grant him membership.

- E.g. if universities and other academics don't see Leda as an academic, then it is really hard for Leda to see herself as an academic.

- There's a **paradox of commitment**, because the more you want to belong, the more hurtful it will be

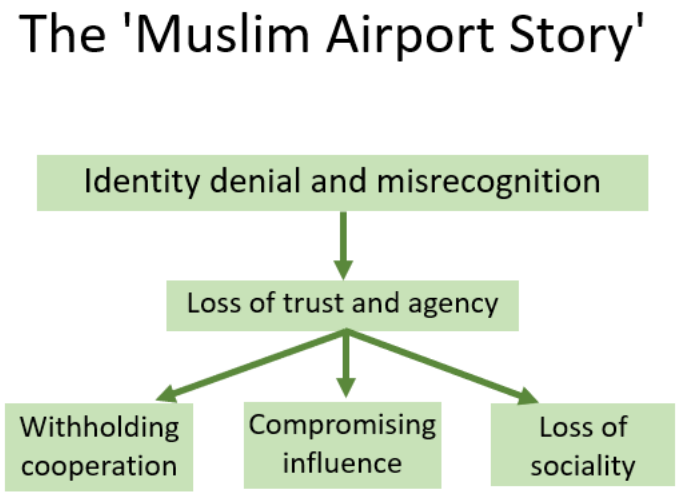
- **Multiple identities misrecognized –** once you are a part of a group and strongly accepted as being part of that group (e.g. being British) then you can branch out and be in other groups e.g. business person, mother etc. But often if you are in an unaccepted or marginalised group you are seen in only one kind of way i.e. as a Muslim.

- **Public humiliation and feeling powerless (recognition = agency)** – when you are identified as being part of a group it gives you the agency to act as part of that group. People talked about in the airport

was practices of humiliation where other members of that group are invited but observe you being rejected and rendered powerless

Some of the literature that these ideas above dovetail with and that Leda engaged with in her publication:

- The problem is identity denial and misrecognition
- **Intergroup contact** (e.g., Dixon et al, 2005; Hopkins et al, 2007) a problem with a lot of the intergroup contact research that looks at how though positive contact we can reduce prejudice, its all been from a majority perspective and it hasn't considered the ways in which ccontact can be experienced very differently from people on two sides of an interaction and that there can be negative experiences of intergroup contact.
- **Meta-representations** (e.g., Butz & Plant 2004; Shelton, 2003). This refers to the ways in which we think about how other people see us, and how when we are members of a low power of low status group (e.g. Leda compared to her boss) we are more concerned about how they think about us rather than about how they are perceived. So its not just about how people perceive the other, but you need to think about how people think about the other percinging them and how that is consequential for who we are and who we feel we can be.
- **Humiliation** (Honneth, 2004; Neuhausser, 2011)



Blackwood, Hopkins & Reicher (2012, 2013 a&b, 2015)

Then she looked at what are the kinds of consequences of having your British identity denied and the experience of being misrecognised, not being seen on your own terms and how you understand yourself:

These all show how a community starts to withdraw and disengage with authorities.

- **One of the consequences is a loss of trust and agency.** There is a strong relationship between when I am recognised as a ingroup member, then you can trust and be agentic, I can act on my own terms. What was happening for people was the sense of even though I know I am a good person and a good citizen, I cant trust that other people will understand that and that makes it risky for me to do anything because I cant count on other cirtixen to support me. They have a sense that anything can happen to them in an airport because of how they are seen. - - - "If I were to object I would be locked up in prison for sixty days, potentially be taken to Guantanamo, potentially not being questioned for the next six years"

- **Withholding cooperation** – people talked about withholding cooperation in a lot of ways within the particular airport context. And also how it translated to their general sense of how they could interact and cooperate with authorities. This quite is from a young man who had been in the UK army, he was a big believer in authority and disiplice, he was very concerned about the terrorism threat and he was very critical of his Muslim friends for not recognising the threat and not being prepared to do more. But in the interview he flipped and started talking very differently about authority and it was all linked to him having seen his elderly Grandma humiliated in an airport. Although he is part of the army he does not have respect for these atuhrotiy figures because he saw them as being corrupt and doing it to fill a quota, so he didn't trust their moral fortitude and he also saw them as incompetent. If these people weren't capable of seeing that his elderly grandma was not the sort of person who knew Osama Bin Ladin (she was asked this) then how can he trust these people to know what there doing and do their job well. He saw himself as being better able to determine what was a risk and what wasn't, so he would hold back his cooperation. - - - "I don't sort of listen to authority figures now because I respect them… I have to listen to what you say, but it doesn't mean I respect you on the inside"

- **Compromising influence** – This was particularly resistant for Special Branch. The people who are leaders in the community and working closely with counter terrorism , there was a sense that it is increasingly difficult for them to tell people in their community to cooperate with the police when these sort of things are happening to people in their community. You see that moderate voices start to fall silent, people aren't starting to become anti-authority, its more that people who do want to be cooperating feel more constrained in their ability to do so. - - - "What am I saying to my community- am I wanting them to feel the police are you saviours, there's no problem and you're not felt as the other?"

- **Loss of sociality** – You know that people don't want to sit next to you etc. This particular quote was from a businessman in his 40's who was a very funny and good person and knew that if something did happen in an airport or on a plane that he wouldn't be able to help in any way because he would

risk being seen as the threat. “It’s the perception I have, you go and do good in life, yeah? And it’s always at the back of your mind, if something goes wrong, like on the airplane there’s a disagreement, I can’t get involved”

- **After the research Leda did a lot of validating the research and explaining the research to the Muslim communities, talking to Home Office and trying to get it to influence policy and also with police and she ended up being involved and invited to do some research in an airport.**

- **You can do psychological research that can have real world impact on policy and on peoples everyday life. Its completely different to empiral reductionistc work.**

Did the research indicate any potential ways to reduce negative Islamic airport experiences?

Leda did research with airport authorities and found one of the things that was really important to recognise was that while there was some explicit prejudice in some circumstances, often Leda could see that the experiences that Muslims was having were as a consequence of more structural issues.

Working with airport authorities (Blackwood, 2015, 2018)

The authorities think not prejudice if we…

…follow rules and procedure and treat everyone the same (the promise of procedural justice and ‘good’ interpersonal communication) – but often they don’t treat everyone the same, you would treat a child, grandmother or business person quite differently. But it was the fact that people were responding that this is a Muslim in front of me, regardless of whether they were stopping and questioning them or trying to be overly cautious, it resulted in very clunky interactions.

…and it’s not profiling if we are science and intelligence led

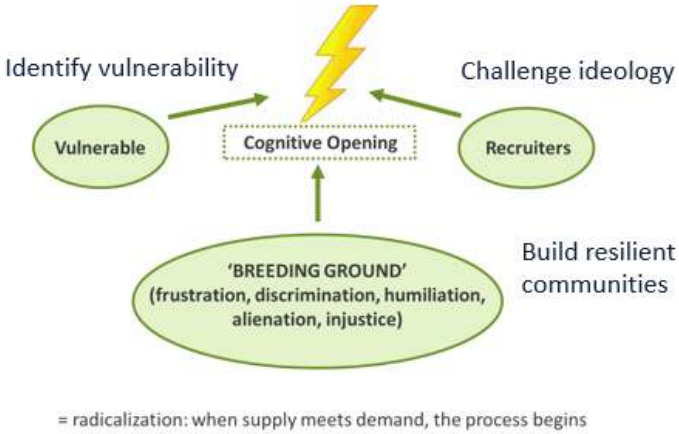
The response:

- Dignity and respect – treating the same? Perhaps its not about treating everyone the same, but it is about treating everyone with dignity and respect, respecting peoples identities.
- Positively recognizing identities
- Restoring agency through facilitating legitimate goals – e.g., catching a flight, protecting oneself from negative attention

- The airport Leda was trying to positively recognise people identities e.g. proving more information to Muslim travellers who were going to Eid about things and proving information about celebratory things and so on.
- Restoring agency through facilitating legitimate goals – e.g. recognising that if you stop someone and they miss their flight, you should them help them get onto the next flight or helping them make the flight, protecting oneself from negative attention

- It is very limited what you can do within a policy context that isn't inviting surveillance of a particular community.
- Leda has a paper challenging the Governments measures 'preventing violent extremism' and there has been a lot of contention around it. It is the one part of their counter terrorism strategy that receives a lot of flaque, including senior police.
- There are lot of difficulties with Leda's research as it is so sensitive. E.g. she was at a Muslim protest and a police officer kept standing next to her and following her because he was concerned about what her research was going to show so by doing this the Muslims saw and wouldn't talk to Leda as much and lost some trust in her.
- Leda doesn't really do any quantitative research. She did do a quasi-experiental survey looking at the processes around leadership but this meant that she had to have a really focused question which she was interested in, so it came from the research but wasn't specifically addressing it.

Challenging psychological models



= radicalization: when supply meets demand, the process begins

Theorising radicalisation and surveillance practices
(Blackwood, Hopkins & Reicher, 2012, 2013, 2015)

Graeme Fairchild (neurobio. of anti-social beh.)

WEEK 5 NOTES LECTURE 26/10/20 – Monday

How to write assessment

- All notes taken from pp and panopto
- All notes are in help to write abstract help doc

WEEK 5 NOTES LECTURE 30/10/2020 – Friday

Neurocognitive Approaches To Behaviour - Dr Graeme Fairchild

- 1 PDF papers left on moodle to make notes on: Research Review: Evaluating and reformulating the developmental taxonomic theory of antisocial behaviour Graeme Fairchild, Stephanie H.M. van Goozen, Andrew J. Calder, and Ian M. Goodyer- https://moodle.bath.ac.uk/pluginfile.php/1647654/mod_resource/content/1/fairchild%202013%20JCPP%20review_in%20print.pdf

- Can you summarize their main area? **Developmental psychopathology**
- Do you understand their main methods? Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?
- His paper that was published in 2013 in the journal of child psychology and psychiatry geives a review article approach to all the research they have found on cortisol , brain structures and the developmental theory

'Underneath the hoodie'

How I ended up studying antisocial behaviour & what I've found so far

- His main area of research is antisocial behaviour and the psychiatric diagnosis of things related to this – e.g. conduct disorder. And adult antisocial behaviour which is often diagnosed as antisocial personality disorder or psychopathy.

What is Conduct Disorder?

- **DSM-5: 'A repetitive and persistent pattern of behaviour in which the basic rights of others and societal norms are violated.'** It includes things like:
  - Violence towards people and/or animal cruelty

- Behaviour leading to property loss or damage
- Deceitfulness or theft

- There are 15 symptoms in a check list, but some things are more common than others and some things are more severe than others. Includes things like sexual assault or rape, using a weapon to harm somebody to more normative things like pathological lying, truancy and shoplifting.

- Its quite a heterogeneous condition

- Co-morbidity is when you have multiple disorders at once, the main comorbidity for CD is ADHD. Around 30%-70% of people with CD also have ADHD. Depression is also a common comorbid condition. In girls with CD, they are more likely to go on do develop BPD in adulthood.

- IQ is related to CD. It is one of the most robust psychological findings in CD. CD is linked to lower verbal IQ (around 10 points lower than the average). But they are not sure whether that is a cause or an effect, because many kids if CD refuse to go to school or get kicked out of school.

- Does CD differ with culture? Not really as the DSM can be used in any country. There is a fairly similar prevalence around the world. In Brazil they actually have a higher level of conduct problems (which is just a lower level than CD) but the same prevalence of diagnosed CD as the UK.

- There is some associations with poverty and low socio-economic status

- In the ICD-11 there is a mix between CD and 'Oppositional Defiant Disorder' which is more about being angry, having temper outbursts.

Why does it matter?

- 2nd most common reason for referral to CAMHS; prevalence of 5% in school-age children

- High mental and physical health burden

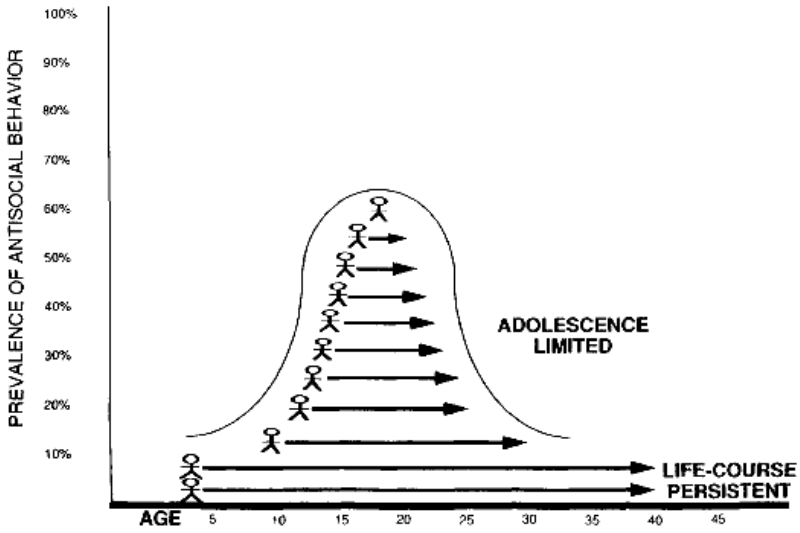
- Its linked to much higher levels of unemployment and educational failure

- Children with CD cost society 10+ times more to raise to adulthood than children without any conduct disorder (Scott et al., 2001) So it harms both society, the person who has it and their families.

Heterogeneity (variation) within CD

There have been a lot of different attempts to try to break up CD into more meaningful subgroups:

Conduct Disorder (CD) can be categorised on the basis of:



- **Age of onset (DSM-5)** – before versus after age 10. So there is childhood onset CD or adolescence onset CD
- **Level of callous-unemotional traits or 'limited prosocial emotions' (DSM-5)** e.g. things like less ability to feel guilty or empathy for other people, emotionally cut off or flat or not being bothered about performing well in school or work. There is a subtype of CD for people with and without these callous-unemotional traits
- **Severity of CD** (mild, moderate or severe)
- **Which approach is most clinically useful?** E.g. the childhood onset CD and the CD with callous-unemotional traits might be harder to treat than the other variations

The developmental taxonomic theory

- This is a theory which has influenced a lot of Graeme's work and that he tries to test in his work.
- It was set up by someone called Terry Moffitt (1993) and it is one of the most highly cited theories in the whole of developmental psychology (the papers been cited about 13,000 times).
- The idea is that there is a age crime curve to criminal/antisocial behaviour where you get a big spike in antisocial behaviour in the adolescent years around 15,16 and 17. If someone is going to commit a crime in their life, that it the most likely time.

- But Moffitt argued that this age crime curve where there is a spike in antisocial behaviour in the late teens is hiding two groups of offenders/antisocial individuals.

- One is called life-course persistent, they start off having behaviour problems, maybe ADHD, and can show antisocial behaviour all the way through there life.

- The other group – Adolescence limited- develop antisocial behaviour in a much more transient way, they develop antisocial behaviour at about 12/13 and then they grow out of it.

Moffitt argued that:

- Life-course persistent/childhood-onset CD is a ***neurodevelopmental*** disorder (like ADHD), mostly affecting boys

- Adolescence-limited CD is a **social** phenomenon and is due to social modelling/copying of antisocial peers to get things you want e.g. to impress other people to get access to alcohol and drugs, ∴ no role for neuropsychology /individual-level characteristics

- The DSM-5 distinguishes between childhood-onset and adolescence-onset forms of CD (age 10 is the cut-off point between these subtypes. And these map onto the two types of CD - life course persistence = childhood onset CD. Adolescence limited = adolescent onset CD

Methods that I've used to study CD:

- **Neuropsychological methods** – facial and vocal emotion recognition, decision-making, learning from punishment and reward

- **Neuroendocrine & psychophysiological methods** – cortisol secretion under basal conditions and stress, heart rate and skin conductance responses. To look at how the body responds to baseline conditions or under stressful conditions

- **Neuroimaging methods –** structural and functional magnetic resonance imaging (MRI). Also looking at functional changes in the brain, e.g. looking at how people respond when they are looking at facial expressions

- **Clinical & diagnostic methods** – semi-structured interviews to look at DSM criteria do they meet criteria for conduct disorder? But also other comorbid disorders e.g. ADHD or depression. Looking at things like Trauma measures and medical history

MAIN FINDING = The main finding was differences in cortisol reactivity

So the main study Graeme is talking about today is Cortisol responses to stress in adolescents with Conduct Disorder

- The study was done around 2005/6
- The participants were between 12-18 and the mean was around 14

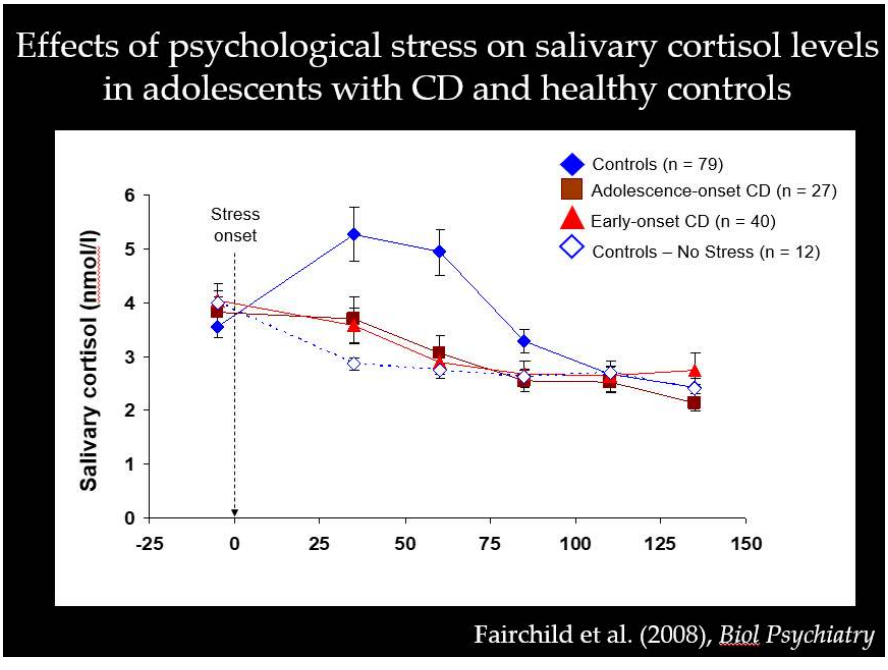
- They looked at adolescents with CD and controls, to see if people with CD have abnormal responses to stress
- They used the task called **The frustration/provocation stressor**
- The use the 'Manual Precision Task' which is like a video game and you have to move really quickly to shoot on the target
- The task starts off really easy but then the 3rd and 4th round of the task are made to be impossible, e.g. the mouse stops moving, or moves in the opposite direction.
- It is deliberately designed to induce frustration and feelings of failure. Because they feel like there easily going to be able to win and then it gets too hard.
- Then they introduced a frustration/provocation stressor -It is a competition between another person who's in another room they are told, and then they get a video of a boy saying mean things like 'I could have done better than that with my eyes closed' or ' my grandma could have done better than that'
- They get a social evaluation by another peer and it provides really negative + antagonistic feedback
- People get really really angry and especially the kids with conduct disorder, they get really angry, start throwing the mouse around the room, text their friends saying come hear and help me beat up this kid or just generally get really enraged.

- The **ethics** are a bit funny on this one. But in the end it has a happy ending because they get to play against the boy again apart from they get to influence his game and ruin it and they get told that they won in the competition and they get a bonus prize of £10 for winning the competition. So although they were angry for a time, it had a happy ending and the vast majority said they were happy to have been in the study and really enjoyed it. The anger was temporary, and 20 minutes later they were fine
- The study was done with **ALL boys**. They did intend to it the same study with girls but a pilot study showed that girls didn't show a cortisol change to the stressor , it turns out it was more salient in boys.

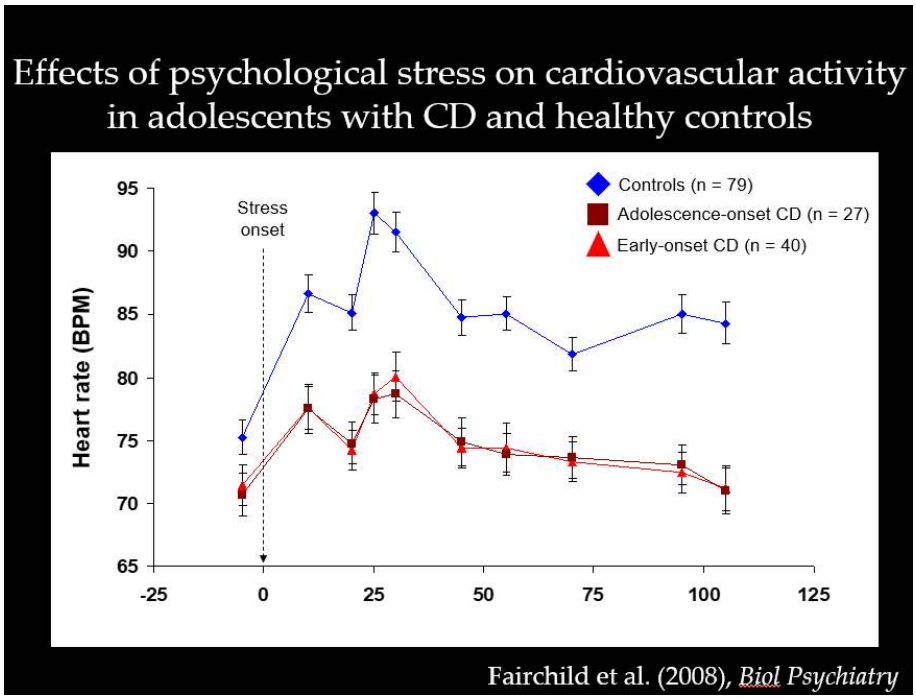
Results:

- They then looked at the adolescents cortisol levels
- Each point on the figure is the average cortisol levels for that group.
- Effects of psychological stress on salivary cortisol levels in adolescents with CD and healthy controls
- The control healthy boys are the blue diamonds, but rather than the cortisol levels going down they WENT UP after the stress onset for about an hour and then went back down to normal in another hour.
- But the two lines for people with adolescent-onset CD and early-onset CD have levels of cortisol which are a lot more like the controls who didn't experience any stressor. So they don't show a significant increase in cortisol, despite getting very angry, throwing things and negative – there bodies didn't show the stress.

- They also looked at the participants heart rate.
- In the control group the heart rate is really high and stayed high for the next 2 hours.
- But the two groups with CD heart rate increases much less and comes back down to normal a lot quicker. They also start a bit lower



- **So the 2 systems – the cortisol and heart rate- are both showing that the the body of adoslences with conduct disorder are less responding to stress than the controls, even though subjectively they are very angry**

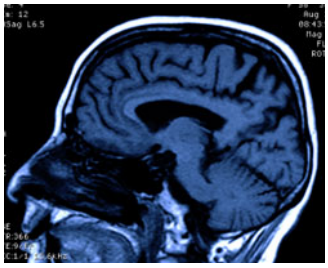


- One reason that they don't show a cortisol reaction to stress might be because they are so used to being angry and being under conditions which are very stressful.

- Also key that both groups of adolescence with CD both have the cortisol underactivity, so its not that the childhood onset CD has biological differences , both groups show abnormally weak cortisol responses to stress and both groups show abnormally weak heart rate responses to stress, even though they both responses being more angry than control groups.

- There is an incongruence between what there body is doing and how they feel

- It's possible that this could be because they have experience a lot more stress in their lives that is worse (might even be abuse or maltreatment) and so they need a much higher threshold of stress to show a cortisol increase???



Methods for measuring brain structure and function

2nd study he is going to talk in depth about

They used structural and functional MRI to study whether the brain is different in adolescence with CD compared to controls

How do we measure brain activity using functional MRI methods?

- Functional MRI is looking at changes in oxygen level. As you use part of your brain, blood has to flow to that part of the brain to replace the energy that is being lost.
- Its an indirect method as they cant measure neural activity directly
  - Blood Oxygen Level Dependent signal
  - O_2 is transported by haemoglobin (Hb)

Questions we can ask using fMRI:

- Which areas of the brain are being used?
- Are they functionally connected?
- Differences in brain activity or connectivity between groups or individuals? - Important for this research
- These methods can be used to build models of cognitive or emotion processing or understand dysfunction in mental disorders like CD

What is measured in structural MRI?

- Using structural MRI to create an image of the structure of someone's brain in what is called a T-1 waited image
- You can take an image to look at the different elements of the brain so you can discriminate between grey matter (which is where the neurons are), white matter (where the milonated axons are) and the cerebral spinal fluid (the fluid in the middle of the brain which cushions the brain)

- Magnetic field causes atomic nuclei in H_2O to become *aligned* with direction of field
- Signal from hydrogen nuclei varies according to surroundings - allowing us to discriminate between grey matter, white matter, and CSF

Questions we can ask using structural MRI methods:

- Differences in grey matter volume between groups or individuals?
- Or differences in white matter volume?
- We can also look at the outer layer of the brain and analyse cortical thickness and study morphology (shape and size) of key brain structures
- We can also study structural connectivity between brain regions

The main study he is talking about is about: Brain structure in Conduct Disorder

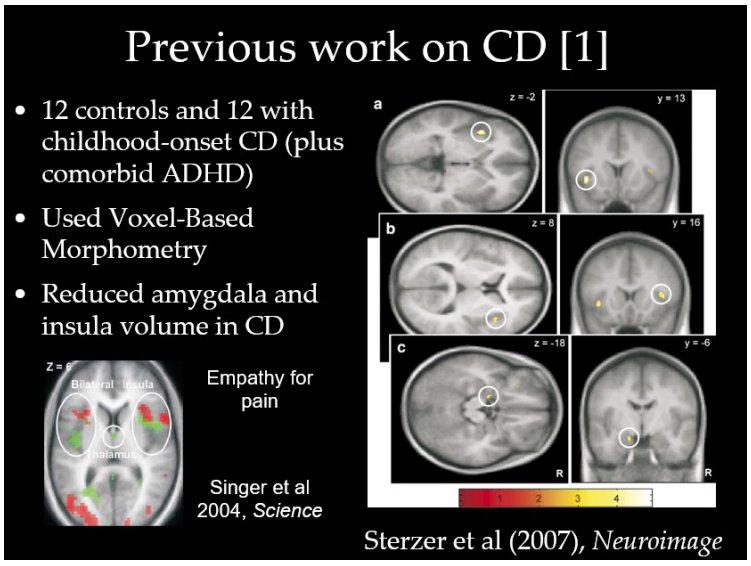
Are there differences in brain structure in boys with CD compared to typically developing boys and if so where are they

There have been a couple previous studies on this:

This study had a VERY small sample and they were all boys

Plus all of the children at co-morbid ADHD which muddies the waters a bit

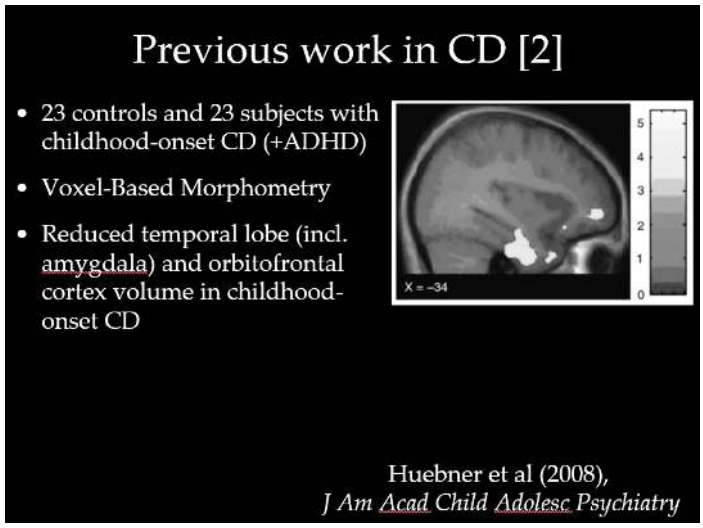
There was also a HIGE IQ difference, the control group had a mean IQ of about 130 and the CD group had a mean IQ of about 30 – which might also explain differences within the brain


Previous work on CD [1]
12 controls and 12 with childhood-onset CD (plus comorbid ADHD)
Used Voxel-Based Morphometry
Reduced amygdala and insula volume in CD
Empathy for pain
Singer et al 2004, Science
Sterzer et al (2007), Neuroimage

This is another study that came along after

But it was also only boys and whom also had co-morbid ADHD

They found fairly similar results



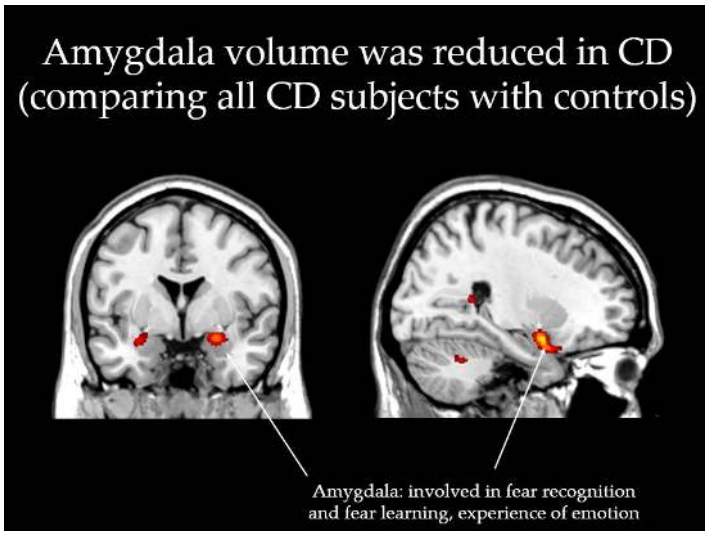
Our structural MRI study of CD

- Largest voxel-based morphometry study to date (N = 90); first to include male participants with adolescence-onset and childhood-onset CD

- **LITERATURE GAP**- Until Graemes study no one had looked at the adolescent onset group and whether they ALSO showed structural abnormalities AND they also tried to separate out the effects of ADHD

- **Predictions**: both childhood- and adolescence-onset CD will be associated with reduced grey matter volume in amygdala, orbitofrontal cortex, anterior cingulate and anterior insula and that these differences will be greater in boys with childhood onset CD because they have an earlier onset and more symptoms

RESULTS:


Amygdala volume was reduced in CD
(comparing all CD subjects with controls)
Amygdala: involved in fear recognition
and fear learning, experience of emotion

Comparing the brains of the 60 kids with CD (30 with childhood onset and 30 with adolescence onset) with the 30 controls.

Both sides of the amygdala were smaller in volume in the CD group as a whole compared to the controls.

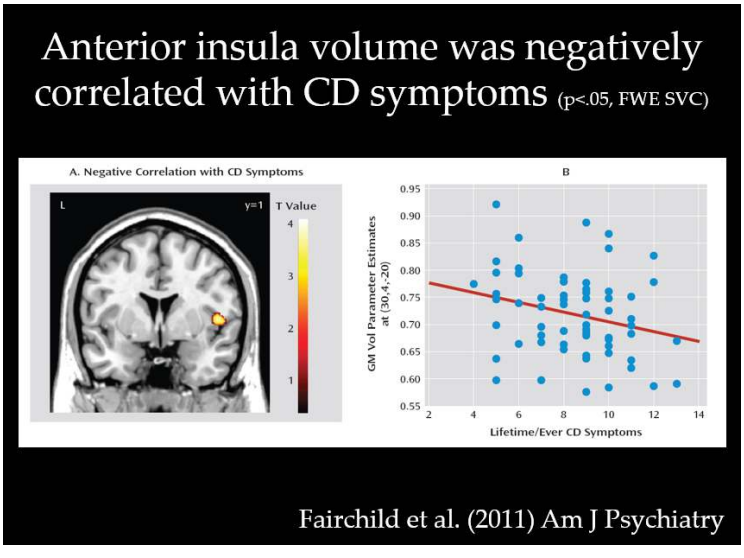
The amygdala is associated in recognising emotions in another's and particular in fear and in experiencing emotion themselves. This might be why they have flatter emotion but also find it harder to understand how other people are feeling, because the part of the brain associated with doing that is structurally either damaged or didn't develop properly.

Looking at the two subgroups:

- Just the childhood-onset CD group compared to the controls - - - the right amygdala was significantly smaller in volume, and the cerebellum was also smaller in volume.
- The adolescent-onset CD group compared to the controls - - - the effects were strong. On both sides of the brain the amygdala has a significantly smaller volume.
- So rather than finding more differences in the childhood group, they actually found both of the CD groups had reduced volume of amygdala, and if anything the adolescent-onsets were slightly smaller
- They both differ from controls and have **STRUCTURAL DEFITIS**

Graeme also went onto to look at the effects of severity of CD on the brain

- Because some of the symptoms of CD are quite normative e.g. pathological lying or shoplifting which quite a lot of people will do when they are a teenager whereas some of the symptoms are quite severe like using a weapon or assaulting someone sexually
- They wanted to know if there was a relationship between the severity of the CD and the brain
- They found that the anterior insula - which was a region of the brain that had been implicated in a couple of other studies - was effected.
- The anterior insula is associated with empathy. This makes sense as if you have a reduce capacity for empathy then you are more able to harm other people without caring as much
- The more severe there CD was, the more aggressive you were → the smaller the region of the anterior insula was
- This indicates that even the 3 symptoms and above threshold of having conduct disorder or not, there is more information needed and that the experiences and brains of those with severe conduct disorder is going to be different from those with mild conduct disorder.

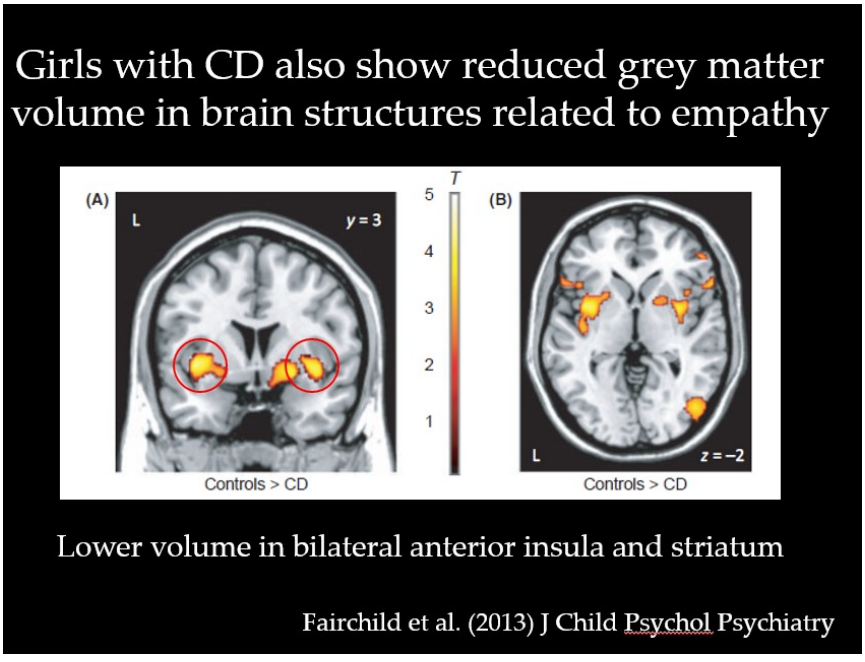


Summary of structural MRI results:

- Reduced volume in brain regions in the amygdala involved in emotion recognition and learning in CD
- Similar changes in brain structure in both CD subtypes, no really difference between them but both differ from controls
- Negative correlation between severity of CD and anterior insula volume (empathy):
    - Support for 'dimensional' models of CD
    - Explains empathy deficits observed in CD?

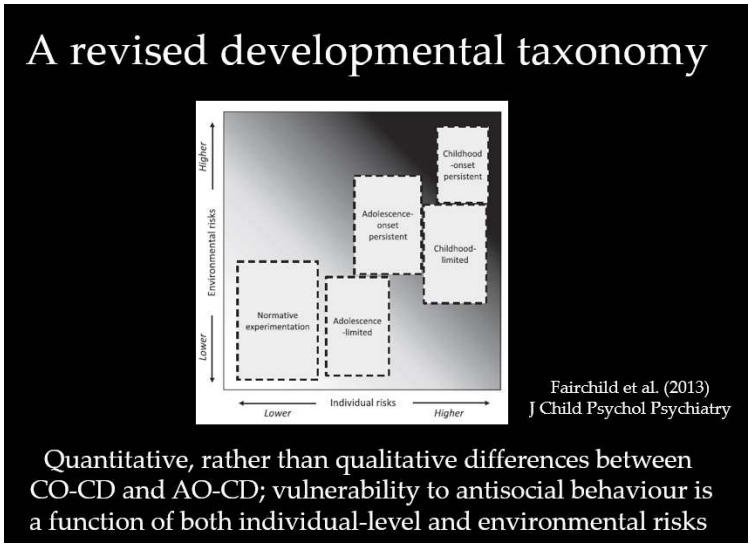
- They concluded from this that both forms of CD might be neurodevelopmental and that there might be environmental differences between subtypes that might effect when that structural abnormality manifests e.g. the people in the adolescence onset might have more protective environments and so it onset later but those in the childhood onset might have had more disruptive upbringings and that's why it manifested itself earlier because their neurological vulnerability come to the forefront more quickly

They also looked at the brains of girls with CD and found similar brain regions were lower in volume and the bilateral anterior insula and striatum:



Implications of our work:

- Our cortisol and brain imaging data pose a **challenge** to the developmental taxonomic theory (that one subtype of CD is a neurodevelopmental disorder -childhood onset and that adolescent-onset is normative and socially driven.) The results show that there is a neurodevelopmental element to both of subtype
- Both subtypes of CD linked with lower cortisol responses to stress & altered brain structure
- AS WELL AS STRUCTURE THERE WERE ALSO FUNCTIONAL DIFFERENCES – They found that the amygdala was less responsive in both subtypes of CD
- If both subtypes have neurobiological vulnerability, what accounts for age-of-onset differences?
- It could be because of the quality of early environment (parenting, level of supervision, maltreatment) may interact with individual vulnerabilities to influence age-of-onset. So maybe if you have a protective environment you don't develop CD until your teens but if you have a damaging or unprotective environment you develop CD a lot earlier on.



- So rather than thinking that CO-CD and AO-CD are completely different things and one is a neurodevelopmental disorder and one isn't – they made a model that said that everybody is exposed some degree of individual risk (both neurobriogially and environmentally).
- The children that develop CD early on in life carry on having antisocial behaviour all the way through the life span and they might be exposed to very high levels of **environmental risk** (e.g. maltreatment or poor parenting) but they **also** might have very high levels of **individual risk** (e.g. changes in the brain, maybe they have genetic risk factors)
- Whereas kids with AO-CD might have high on both, but not as high as for CO-CD, or they might be high on individual risk but have a low environmental risk.
- We are all on this spectrum but those with CD either have high of one or both

EPIGENETICS?

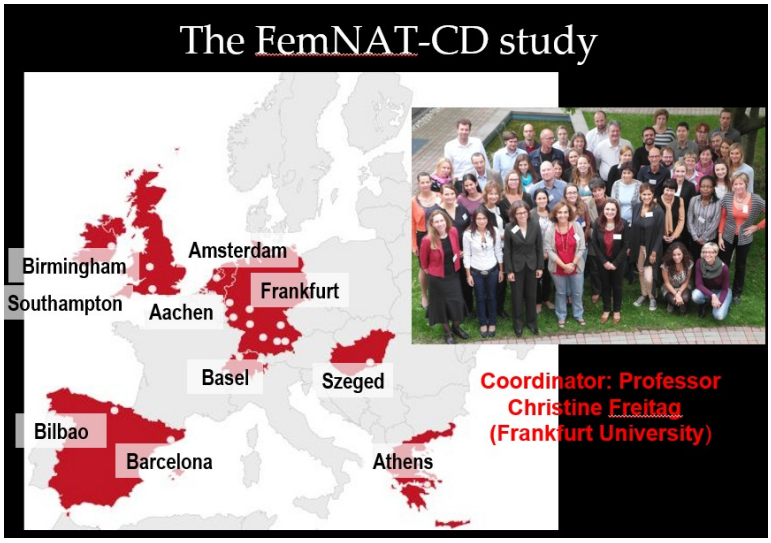
- CD is moderately heritable, about 50% of variance in CO is explained by genetic factors. It is more genetic than depression and anxiety, but not as genetic as ADHD or schizophrenia.
- There could be gene by environmental interactions, so people have risk factors genetically but they are not evoke because the person grows up in a positive environment but if someone grey up in a negative environment, those risk factors might be activated
- One of the key studies in CD looked at MonoAmi Noxidase A – they found that if you had the risk version of this gene and you are exposed to mal treatment there was about a 80% chance that you would develop CD. Whereas if you had the protective variant of this gene, even if they were exposed to maltreatment there was only a 40% chance of developed CD
- So there definitely are gene by environment interactions

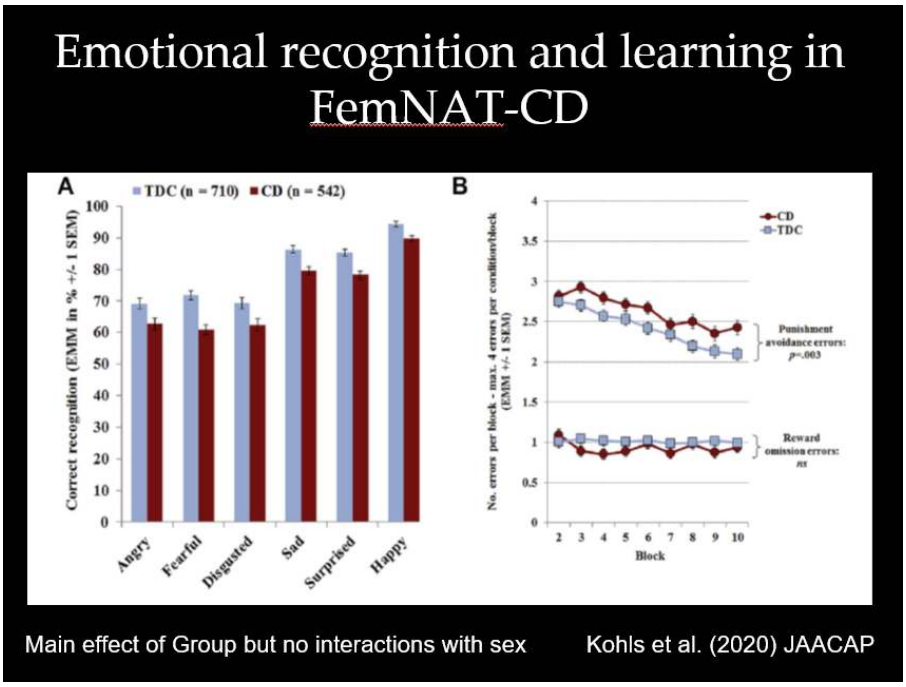
Graeme's current research

The Neurobiology & Treatment of Female Adolescent CD (FemNAT-CD)

- A lot of the early research Graeme did was on boys only, and that's because CD is about 2 or 3 times more common in boys
- But he has gone on to do a big study Europe wide on females with CD
- Multisite study funded by FP7 scheme, covering 8 European countries and 13 institutions (€6 m)
- **Aim**: characterise CD in females & enhance our understanding of **sex differences in CD (why is the provenance of CD much lower in girls than boys? In girls who have CD do they have different brains to controls? Do they have genetic risks? Etc.**
- Multidisciplinary study encompassing genetics, epigenetics, neuroimaging, neuropsychology, psychophysiology & randomised controlled trial for a treatment for CD in girls
- **Largest study of CD in the world (N = 1840) aged between 9-18**

- First longitudinal neuroimaging study of CD. This involved scanning people with CD and controls repeatedly to look at how their brains develop over time





- This is looking at facial emotional recognition in boys and girls with CD compared to typically developed controls (TDC). The TDC controls are better than the CD kids at recognising facial emotions by about 10% across the board. They didn't find any sex differences in this , boys and girls with CD were equally impaired in recognising facial expressions compared to TDC.

- The results on the right show the effect of punishment and reward on learning performance. You should get better the in each block if you are learning form punishment or reward, so making fewer errors. The TDC learned well from punishment , where as the CD kids were less good at learning from punishment, they kept making errors but they did make slight improvement. Again there was no difference between boys and girls in this learning.

- They showed that here there are no sex differences in the impacts here of CD

- There is some evidence that testosterone levels in girls with CD are higher than controls.

Rutter's Romanian Orphanage

- He talked about Rutter's Romanian Orphanage Study which we did in a level and how deprivation on young children can effect brain volume

- The Russian ruler Chichescu had a policy about people having as many children as possible, but it was a really poor country so many of the children ended up in horrific orphanages. When the Chichescu regime fell, the media told the world about this and people from all over the western world rushed to adopt the orphans. So Michael Rutter set up a longitudinal study to look at what the long term effects of early institutional deprivational and does it matter how long you are exposed to deprivation.

  Graeme looked at the young adults of these children at around age 22 -25 who had been in the conditions in the orphanages to see the long term impacts.

- **They found that the overall brain volume in Romanian adoptees was around 10% smaller than in UK adoptees. So even 20 years later there brains are still showing the impact of this early deprivation , that there brains never caught up to children who were never deprived**.

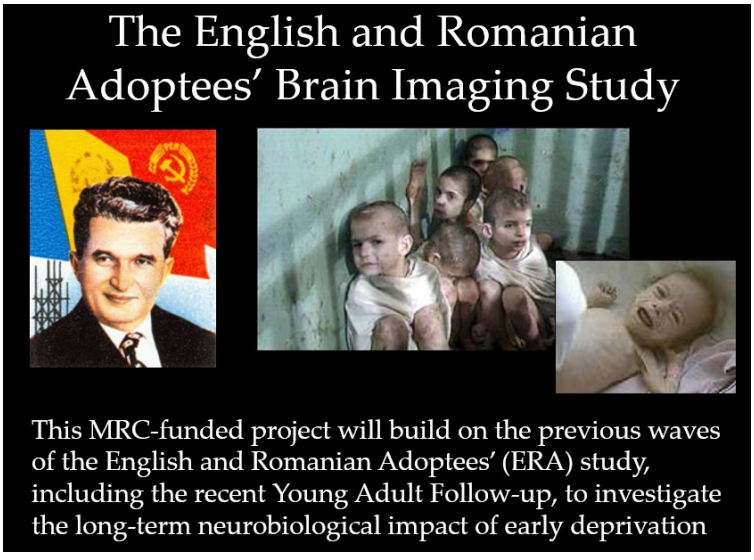
- There is also a dose dependent effect- the longer they are in these orphanages before they are adopted, the more there brain is altered. There is a strong relationship between the duration of deprivation and brain volume, the kids who were in the orphanages for the most time (up to about 42 months) there brains were about 20% smaller than the UK adoptees.

- As well as there brains being smaller, there is disapproipeiate reductions in the right inferior frontal gyrus and increased in size in the right inferior temporal gyrus.

- This is really compelling evidence that deprivation can damage the brain and prevent it from developing normally.

Conclusions and implications

- These findings suggest that severe deprivation damages the brain or impairs its development
- The fact that duration deprivation was so strongly related to brain volume is powerful evidence for a causal relationship between deprivation and changes in brain structure


The English and Romanian Adoptees' Brain Imaging Study
This MRC-funded project will build on the previous waves of the English and Romanian Adoptees' (ERA) study, including the recent Young Adult Follow-up, to investigate the long-term neurobiological impact of early deprivation

- Regionally specific differences were seen in brain regions involved in visual perception and face recognition, and language processing

Chris Ashwin
(social cog. neuro & autism)

WEEK 6 NOTES LECTURE 2/11/2020 – Monday

Neurocognitive Approaches to Behaviour - Dr Chris Ashwin

- Two PDF papers left on moodle to make notes on: https://moodle.bath.ac.uk/pluginfile.php/1137584/mod_resource/content/3/BiologicalPsychiatry_VisualAcuity_Ashwin09.pdf Eagle-Eyed Visual Acuity: An Experimental Investigation of Enhanced Perception in Autism Emma Ashwin, Chris Ashwin, Danielle Rhydderch, Jessica Howells, and Simon Baron-Cohen

- https://moodle.bath.ac.uk/pluginfile.php/1439263/mod_resource/content/2/MolecularAutism_2015.pdf Atypical integration of social cues for orienting to gaze direction in adults with autism Chris Ashwin, Jari K Hietanen and Simon Baron-Cohen

- Can you summarize their main area? Simple quantitative methods for autism. He looks at things from a neurocognitive point of view

- Do you understand their main methods?

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

Studying the Social Brain in Autism

Autism

- Develops very early in life (evident before 3 years of age)
- One of the most heritable disorders - there is a high genetic component to it, but that's not the only explanations because in identical twins one twin can have autism and one not
- ~75% of children with autism have intellectual disability – but these aren't typically the participants that Chris uses in his research because he needs them to be able to do tasks and discuss things. (So is the research that he is doing generalisable to the wider field of autism?)
- ~ 50% don't develop speech
- Diagnosed based on set of criteria in the DSM – 5. It was updated in 2013 and now there 2 key areas people need to how difficulties in order to get a dianossis of autism.

2 Key areas:

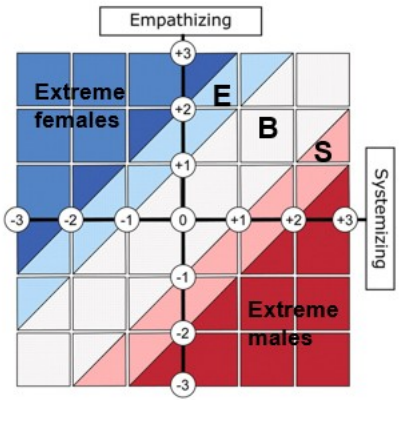
1) **Social reciprocity and communication** - - - (deficits/difficulty understanding others)
2) **Reduced behaviours and interests** - - - (extreme strong and narrow interests and sometimes strong skills – this is really good because it emphasises the strengths in autism)

Different levels to understand autism

- **Behavioral Level =** autism is diagnosed by a professional based on judgement of behaviors they view (and history) from criteria by clinicians. Many experiments are at the behavioral level
- The key theories about autism are generally at the **psychological/cognitive level** of understanding
- It is generally understood to have a **brain/genetic basis**
- Generally, people working with Autism fall into one of these levels, but there isn't enough overlap between these different levels in order to put together full understandings of autism

Key psychological Theory

- One of the key theories used is the **Empathising-Systemising (E-S) model** of Baron-Cohen
- This is used to understand both typical sex differences and also how biases in these components lead towards different cognitive patterns of thinking that may underlie different disorders.
    - **Empathizing** – drive to understand the social world (EQ)
    - **Systemizing** – drive to understand the non-social world (SQ)
- Typically, there are questionnaires which are used to measure these, such as the empathizing quotient and the systemizing quotient.
- If they measure these two components and put them onto a graph they can see that both empathizing and systemizing in an individual are rather balanced. Some people might have a systemizing ability which is miles better than their emphasizing ability or vice versa, then you would fall into one of the extremes.
- The put females as being good at understanding social world but not as much the non-social world and males are the opposite.
- People with autism tend to be in the bottom right corner as they are good at systematizing and understanding the non-social world, but bad at empathizing and understanding the social world. They tend to have systematizing scores which are far above their empathizing scores



- People who have empathizing scores alotttt higher than their systemizing scores tend to have psychosis or be more prone to developing it

Paradox of autism: Strengths and Difficulties

Chapter 15

The paradox of autism: why does disability sometimes give rise to talent?

Simon Baron-Cohen, Emma Ashwin, Chris Ashwin, Teresa Tavassoli and Bhismadev Chakrabarti

Summary

We explore why people with autism spectrum conditions (ASC) not only show deficits but also areas of intact or even superior skill. The deficits are primarily social; the areas of intact or superior skill involve attention to detail and systemizing. Systemizing is the drive to analyse or build a system. We review the evidence related to systemizing in ASC and discuss its association with sensory hypersensitivity. We close by considering the evolution and adaptive features of systemizing and how – taken to an extreme – this can also give rise to disability.

Autism is an interesting condition because it seems to have characteristics of high talent as well as difficulties and deficits

People with autism are quite heterogeneous so not everybody shows the same patterns of cognitions, or the same difficulties to the same degree but typically in autism you see a:

AUTISM STRENGTHS	AUTISM DIFFICULTIES
+ Great attention to detail and perception	- Difficulties in social relationships and situations
+ Logical thinking ability	- Deficits in communication/language
+ Having an extraordinarily good memory (being able to remember facts for a long period of time)	- Difficulties understanding others
+ Exceptional honesty and reliability	- Perseveration on interests and activities
+ Being dependable in regards to schedules and routines	- Dependence on routine
+ Having an excellent sense of direction	- Abnormal responses to sensory stimulation
+ Being very punctual	- Behavioral problems
+ Strong adherence to rules	- Variability of intellectual functioning

+ Able to concentrate for long periods of time	- Uneven development profile

Example: Behav/psych level

UNIVERSITY OF BATH

What emotion is displayed?

Choices:

fear, disgust, angry, sad, surprise, happy, neutral

SOCIAL NEUROSCIENCE, 2006, 1 (3–4), 349–363 Psychology Press

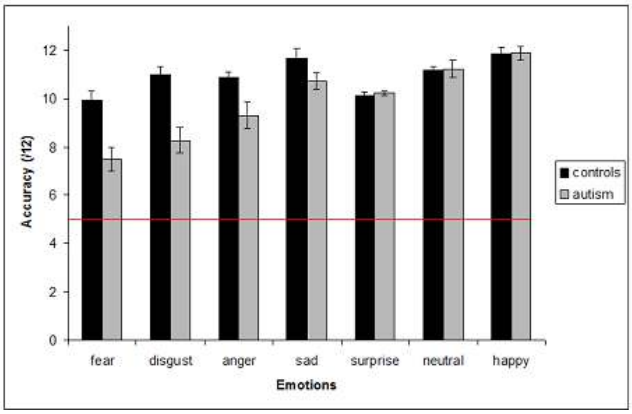
Impaired recognition of negative basic emotions in autism: A test of the amygdala theory

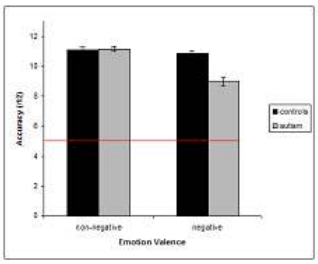
Chris Ashwin
University of Essex, Colchester, UK

Emma Chapman
University of Cambridge, Cambridge, UK

Livia Colle
University of Turin, Turin, Italy

Simon Baron-Cohen
University of Cambridge, Cambridge, UK





- Chris has looked at these different strengths and weaknesses
- He looked at difficulties in recognising other peoples emotions
- He did a behavioural task where he showed the participants (adults diagnosed with autism who were high functioning and typically matched controls) people's faces with different emotional expressions and they have had choose which emotion out of a list of choices was best displayed in that expression.
- They had no time limit and the pictures were very big so they didn't think there would be much difference
- But they did find a reduction in accuracy in those with autism compared to controls.

- It wasn't that they couldn't recognise any emotion at all, they were pretty much the same as the controls with the positive emotions (happy, surprise, neutral). But they struggled with the negative emotions (fear, disgust, anger and sadness).

Example: Neural level

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fMRI research

ELSEVIER

Neuropsychologia 45 (2007) 2–14

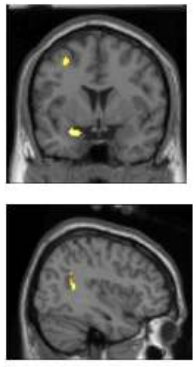
NEUROPSYCHOLOGIA

www.elsevier.com/locate/neuropsychologia

Differential activation of the amygdala and the 'social brain' during fearful face-processing in Asperger Syndrome

Chris Ashwin[a,*], Simon Baron-Cohen[a], Sally Wheelwright[a], Michelle O'Riordan[a], Edward T. Bullmore[b,c]

Scrambled Neutral Low Fear High Fear



controls

autism

- Chris then followed this up with a brain imaging study looking at what might be the neural regions that underline this.
- They had already put forward a theory that there might be problems with the amygdala causing issues in recognizing other peoples emotions.
- They did a brain imaging study because looking at behavioural results doesn't tell you anything about the brain and what is going on.
- They chose fear expressions because they tend to be linked to the amygdala specifically.
- They showed high functioning adults with and without autism different pictures of fearful expressions as well as neutral expressions and scrambled faces in a brain scanner.
- They found that the controls reliably activated the amygdala when seeing fearful expressions, but the autism group showed reduction in amygdala activity when looking at these and they were using their temporal lobe more which is an area which is more involved in the conscious perception of features. This is in line with how people with autism often report that they have to

consciously work out what expressions might be on someone's face, whereas normally people inability to see and understand what people are expressing.

Centre for Applied Autism Research (CAAR) University of Bath

My main research investigates the ***strengths*** (perception, sensory) and the ***difficulties*** (social cognition) in autism

They have been using the results from their research to help to develop applied programmers in various areas to help the autistic community

My main methodology includes:

- Computer-behavioural (having people just do simple tasks on a regular computer)
- Eye-tracking
- Questionnaire (with Covid they have been moving to doing this more because it can be done online)
- tDCS – they were able to induce autistic like symptoms using tDCS (small electrical current to a specific brain area) to briefly induce brain behaviour to be more autistic
- Computational modelling, MRI etc..

Strength

Sensory perception in autism
Ashwin et al. (2009). Biological Psychiatry, 65: 17-21.

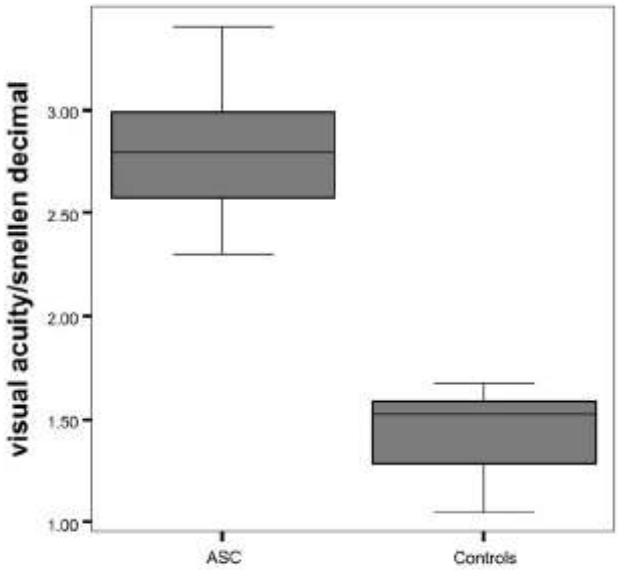
- People with autism often show ***strengths*** in the **sensory perceptual processing** of features and details
- They kept the methods very simple with computer tasks
- Most of the evidence before the study was anecdotal and some case examples with extreme behavior, and then some questionnaire studies and self-report or parent-report about their children
- Very little evidence from lab studies of controlled experimental procedures testing hypersensitivity
- There was very little experimental evidence about hypersensitive aspects in autism

Methods:

- We tested visual perception by investigating visual acuity using a simple computerised visual perception test (FrACT). On a computer people just see a letter C repeated over and over again and they just have to report which direction the gap in the see if facing.
- As you get answers right the C's get smaller and smaller, so the better you do the smaller the gaps become
- We recruited 15 adults with autism and 15 control adults matched on age, IQ, sex ratio, SES, education, handedness and vision. People with visual problems were excluded.

- Shown a ‘c’ on each trial with the gap being in one of 4 directions – participant simply had to detect and press an arrow button for what orientation the gap was in

- The performance was used to determine visual acuity



Results:

- Visual acuity means were compared between groups using t-tests and correlations with autism traits done

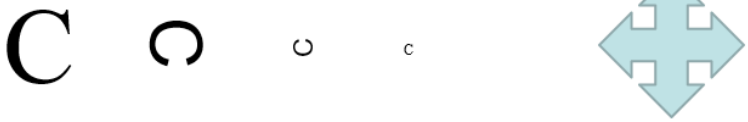
- Results showed the autism group detected the gap at a much smaller size than controls, showing greater visual acuity and demonstrating experimental **empirical evidence for sensory hypersensitivity in autism**

Strengths of the study:

+ Simple but elegant task therefore easy to understand what is being tested and what results mean
+ Groups were well matched on a number of characteristics (age, IQ, sex ratio, SES, education, handedness and vision)
+ Directly tied to prominent theory and testing it in clear way, that predicts greater hypersensitive in autism
+ Results provide evidence for common perception and idea seen in autism – experimental evidence

Weaknesses of the study:

- Simple task and analyses – reviewers and readers often think studies need to be complicated to be important. Just looking at simple tasks and comparisons might be too simple
- Groups were small (15) and not representative of either population e.g. all males, adults, high-functioning etc. Therefore can’t generalize the results to everybody with autism



- There was a bug in the program which meant that the stimuli couldn't actually be displayed at the size it was reporting – so group difference was still there, but it wasn't as big as in paper. Led to program author writing a paper about this technical problem

DIFFICULTIES

Gaze processing in autism
Ashwin et al. (2015). Molecular Autism

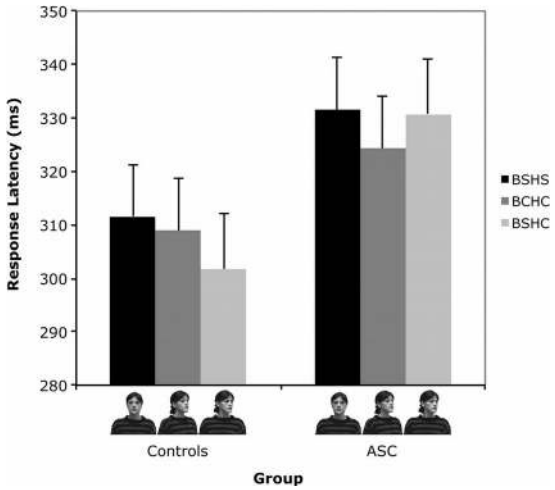
- People with autism often report having problems in social situations and in understanding others, and reported to have atypical gaze and to look less at the eyes of others
- Eyes often used to help read the mental states of others
- But there wasn't a lot of experimental empirical evidence to support this.
- However hard to conduct lab studies in this area as few measures and people with autism often not different to controls in these types of tasks in lab
- I decided to run a task that involves reading the mind in the gaze direction of others using multiple social cues
- Recruited 23 adult males with and without autism (matched gps)

Method:

- Used a task originally developed by Jari Hietanen in Finland and run with controls
- Participants see a series of images of female actor shown with head and body orientation varied to produce 3 different conditions:
    a) Head straight ahead/body straight
    b) Head averted/body averted
    c) Head averted/body straight
- It's a simple task. A dot appears on left/right after the image is presented and they just have to press button to to show which side the dot appeared

- He keeps the tasks really simple so that any differences in wider cognition or intelligence or executive function wont play much of a role

Results:



- Results showed that controls had fastest reaction times (RTs) for the condition with body straight and head averted – signaling something to side is of interest and shifts attention to the side - Theory of Mind (ToM)
- Because they had to 'read intentions' for this
- Autism group showed fastest RTs for condition where all social cues facing to the side – so they might be just reading the 'Physicality' of the social cues rather than mind of the person ToM

Strengths of the study:

+ Easy task to run in a lab on computer with many trials, so you get loads of data
+ Uses simple task to infer about how we automatically try and read thoughts and intentions about others
+ Groups were well matched again
+ Very controlled experiment of social behavior

Weaknesses of the study:

- Groups were not representative of the entire autistic population e.g. all males, adults, high-functioning etc.
- Therefore can't generalize the results wider

- Task not very ecologically valid – its broken down with loads of conditions, its not how things work in the real world.
- Have to make inferences about what and why for results- it doesn't show us how they are reading other peoples minds , there just making educated guesses about why they might be seeing things
- Missing a critical control condition- where the head was straight forward and the head to the side

Applied programs for the autistic community

- Very low employment rates in autism
- While employment won't be right for all autistic people and not everyone CAN work effectively, 77% of unemployed autistic adults said they **want** to work
- They concluded that there are very low rates of adult with autism working in full time paid work so they wanted to do something about this!

16%
Just 16% of autistic adults are in full-time paid work (static since 2007)
32%
Overall, only 32% of autistic adults are in some kind of paid work

- So they made this spring school which brings together students at Bath and other regional universities and they give people skills and training about employability, they link people up with JP Morgan and other companies who explain about their programmes
- And all the strengths in autism make them very suitable for work in certain roles, initially in technology and coding areas but increasingly in different roles

- They got together with JP Morgan as they have recognised that some autistic traits make people real suitable for some of their jobs e.g. great attention to detail, get focus and concentration, pattern recognition skills

- They have also widened it up now to beyond just Autism, but to wider neurodiversity e.g. ADHD and dyslexia. To help people transition easier to employment after they have been at Uni

- Also program to help make environments more inclusive

CRITICAL

- Before the studies were done about 10 years ago, they kept getting way more males then females as participants so they did the study on just male, so although the results might not generalise to females, there wouldn't be any gender effects mudding the water within the study

- Now that more females are being diagnosed and there is a greater access to females with autism, there are being bigger studies including them. Chris just ran a study looking at empathy in males and females with and without autism. They had 550 participants , 100 females with autism, 100 males with autism …

- So they are now able to look at sex differences between those with autism and neurotypicals

- There a volume of literature for what's called 'camoflauging' - Females with autism often have better social skills and greater language than boys. This is because whereby females with autism have a greater adopted to mimic how to react in social situations, they copy how other people react so they don't nittuivitly know how to respond. So autism is harder to spot in females.

Bath Employment Spring School for Autism 2019
If you're an autistic student or graduate (with or without diagnosis), then this event provides support and guidance for the transition from university to work.
17 Apr 2019, 9.00am to 18 Apr 2019, 5.30pm
BST (GMT +01:00)
REGISTER FOR THIS EVENT
10 West, University of Bath

THIS IS THE CUT OFF POINT FOR BEING IN THE 2ND HALF!!!

Ian Walker
(traffic safety & environ. behs.)

WEEK 6 NOTES LECTURE 6/11/2020 – Friday

Behaviour In The Real World – Dr Ian Walker

- 1 PDF papers left on moodle to make notes on: https://moodle.bath.ac.uk/pluginfile.php/1662211/mod_resource/content/1/0956797615620784.pdf Wearing a Bicycle Helmet Can Increase Risk Taking and Sensation Seeking in Adults Tim Gamble and Ian Walker

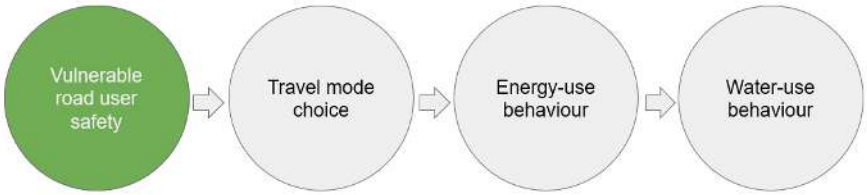
- Can you summarize their main area? Applied research on cycling - using psychological research methods to look at real world questions

- Do you understand their main methods?

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

How I divide my time

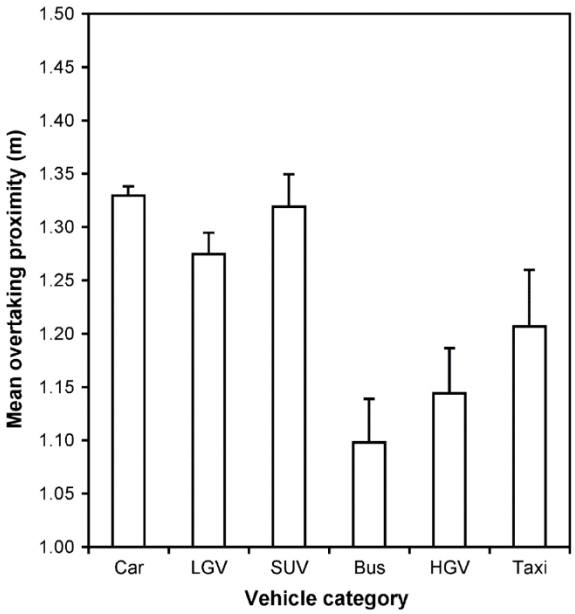


- The one he is going to talk about today is vulnerable road use safety
- The psychology of why collisions happen for pedestrians, cyclists, motorcyclists etc.
- He looks at the rapid decision making that goes on when people are driving cars and how those decisions affect pedestrians.

Theory and Methodology

- My work follows the **pragmatist** approach: theory is chosen based on what is needed
- Its about what is needed to solve a particular practical problem , and ill use whatever theory or methods I need to do that
- He's not just stuck to quantitative methods and statistics. If he's looking at something new or that isn't understood very well, he will jump into qualitative methods to get a better picture and explore more intangible questions
- E.g. he did a paper on the decision processes when people buy a new car, things like this have to be very qualitative and interview based analysis
    - Safety research: attention, social signals
    - Environmental research: Norms, group processes, self-identity, habits
- **Mixed-methods**: everything from interviews to machine learning

Bicycle overtaking

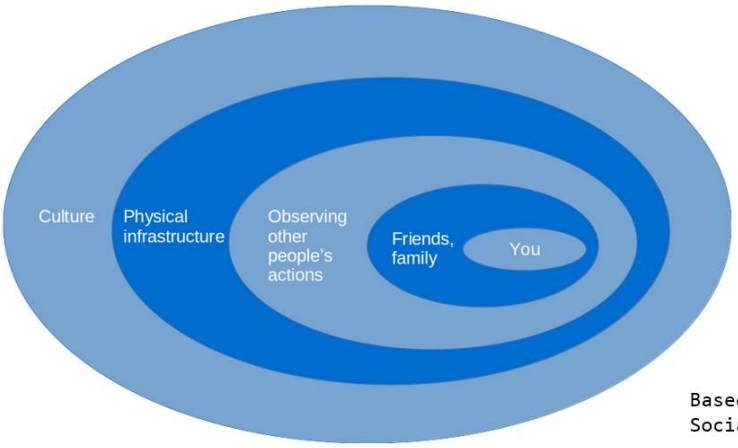


- In England there is more bikes than cars
- They're the most efficient transport that exists and is the biggest predictor in a longer + healthier life
- The main reason that people don't cycle is because it doesn't feel safe
- So he's done several studies riding around on a bike and measuring the behaviour of drivers in real settings
- He had a webcam on the bike and some lasers. The bike could tell how closely drivers past him to the nearest millimetre, it was incredibly accurate. He was looking at how much space drivers left when overtaking the bike.

They found a lot of things going on:

- Different types of vehicle on average leave different amounts of space when they pass as cyclists.
- Buses get the closest whereas cars and SUV's left the most amount of space.
- But these are probably non-psychological influences. I.e the reason a bus probably tends to get closer is because they are much bigger

Influence of the built environment



Based on Bronfenbrenner's Social Ecological model

- This model was developed in the context of education, but it is a reminder that things we look at in psychology don't just happen in a vacuum. If we are looking at a person, the person sits in the middle of lots of **external influences.**
- Your behaviour isn't just appearing because of what goes on in your mind, but behaviour is also shaped by the people around you and close to you and what you see other people doing and what is 'normal'
- You also need to look at the physical world (e.g. road design in the case of the driver overtaking) . The street design doesn't support safe cycling and then all of this takes place within a culture which doesn't respect safe cycling.
- So when looking at why a driver passes in a certain way you need to look at things like this like : what the driver thinks, how the driver internalise they see everyone else

Gender Differences

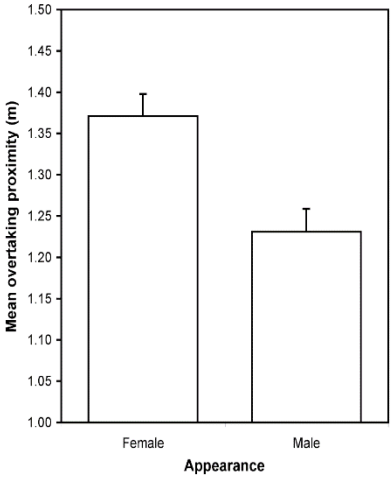
- There was an interest in whether driver behaviour would be different between men and women.
- He asked around but he couldn't find any female researchers that wanted to take part, so he dressed up as a woman!!
- Gender made a big difference to how much space the drivers left
- But Ian thought this findings was too good to be true and was too perfect so he didn't trust his data. But now he trusts it because since then other people have replicated the finding in Florida and Taiwan

- In the first really study he did half of the data collection wearing a helmet and half not.
- He found that when Ian wore a helmet, drivers got a bit closer and it was a bit 8 and a half cm shift in drivers passing behaviour
- That finding was really controversial
- Then

  reason

  doing
- He

  might

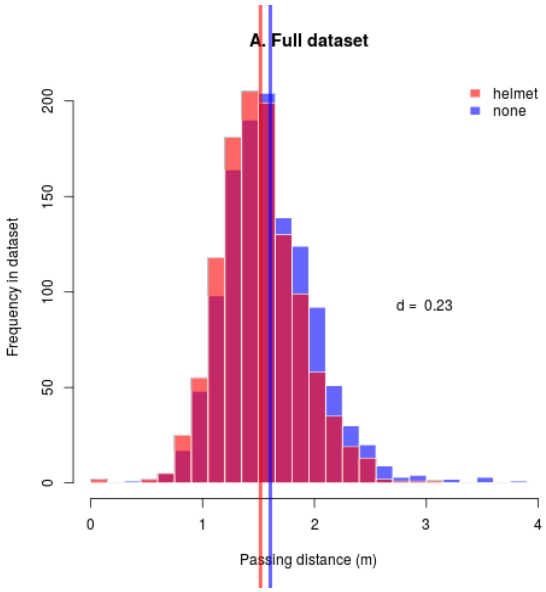


Ian had to find a psychological why drivers were this

found some social psychology that explain this

Helmets: Stereotype activation?

- He found previous research from the 'Transport Research Laboratory' where they had previously written about drivers perceptions of people on bicycles and how there seems to be a role for stereotypes



- As a driver sees a person on a bike, there stereotypically preconceptions about people on bikes changes their behaviour.
- “Pictures of cyclists wearing helmets were generally considered to be more serious and sensible on the road than those without”
- “It was felt that people who had arranged ... specialist cycling equipment and clothing were more likely to have also the experience and/or training to employ correct cycling behaviour”
- “Drivers, particularly those that did not cycle themselves, felt that ‘having the proper kit’ was an indication that the cyclist was likely to behave responsibly”
- This would suggest that as you are driving and see a cyclist you make a rapid judgment. So maybe drivers are making an instantaneous judgments based on how you are dressed

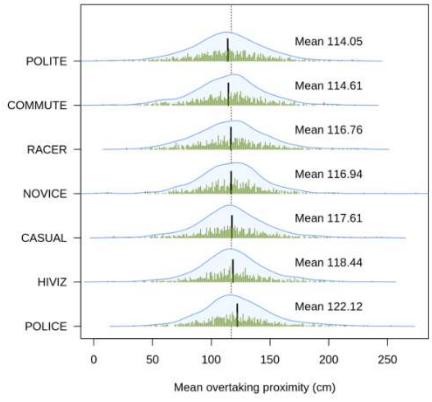
Testing stereotypes

- Ian then did a study to try to test if this idea of clothing stereotypes did cause drivers to leave different amount of space
- Each day on his way to work a colleague of Ian would choose one of these outfits and cycle to work
- They were most interested in the racer and novice outfits. Whether the fact the red cyclist looked very experienced looking, stereotypically fast skilful rider and the novice sends a clear visual message of this is someone who doesn’t know what they are doing.

BUT!! The results showed the outfits didn’t make a difference at all

So whether you looked experienced or not, drivers treated you the same.

Wider Outcomes



- But these studies were quite on a micro level but this study had wider outcomes

- If you can get cycling to feel safer, more people will do it and it will make people live longer and healthier lives
- **Policy impact** - For example, Australia's bicycle overtaking laws
- One of the places that has caught on is Australia. Most of Australia now has laws that ban drivers getting close to cyclists when they overtake. Within most Australia it is illegal to get within a meter of a cyclist when overtaking
- So Ian's research does have an impact in the real world. And it is estimated that this law stops about 7 Australians each year being killed
- The government trials for this law said that it results in a 15% decrease in collisions

2008

Dr Ian Walker published his pivotal 'Driver overtaking cyclists' paper, which found when overtaking the test bicycle, drivers passed closer when the experimenter:

- rode towards the centre of the lane rather than the edge
- wore a helmet
- appeared male rather than female

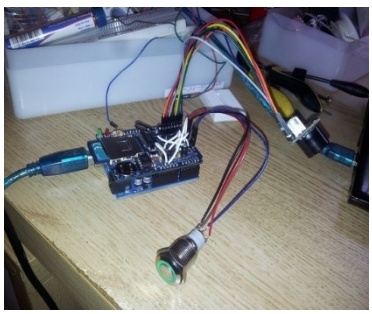
Drivers of buses and heavy goods vehicles got significantly closer than other vehicles.

Based on Dr Walker's findings, the Foundation's Dr Marilyn Johnson wrote her PhD on a similar subject, Cyclist safety: an investigation of how cyclists and drivers interact on the roads (published in 2011).

Citizen science

- In later studies Ian designed this piece of tech which is a lot more lightweight and easy to use and it lets any one who wants to build one , do so and have a device that collects data from passing motorists. He put open plans on the internet and you can build one yourself for about £50.
- As a result of making this tech open to the public, there are lots of other people who have done follow up experiments or collected their own data looking at similar questions.

Gamble & Walker (2016)



They also did follow on research and got people to either wear a hat of a helmet. They found that even when people are just sat in a laboratory, people took more risks when wearing the helmet than wearing the hat. People in a helmet got higher scores in gambolling risk and sensation seeking.

WEEK 7 NOTES 9/11/2020 – Monday

No Lecture Reading Week

Lorraine Whitmarsh (attitudes, sustainability, climate change)

WEEK 7 NOTES 13/11/2020 – Friday

No Lecture Reading Week

WEEK 8 NOTES LECTURE 16/11/2020 – Monday

Behaviour in the Real World - Professor Lorraine Whitmarsh

- 1 PDF papers left on moodle to make notes on:

  https://moodle.bath.ac.uk/pluginfile.php/1664760/mod_resource/content/1/Clayton%20nclimate2622.pdf Psychological research and global climate change Susan Clayton, Patrick Devine-Wright , Paul C. Stern , Lorraine Whitmarsh, Amanda Carrico, Linda Steg, Janet Swim and Mirilia Bonnes

- Can you summarize their main area? Climate change psychology
- Do you understand their main methods?
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?

- Lorraine's specialist topic is climate change psychology. So she calls herself a climate change psychologist or an environmental psychologists
- **Environmental psychologist** - interested in what people think, feel, and do in relation to climate change
- Lorraine is the Director of a climate change research centre (*CAST*) and member of the *Intergovernmental Panel on Climate Change (IPCC)*
- Motivated to understand **people**, but also how to help tackle environmental problems. Its not just about understanding people, its about applying research to **make a difference to real world problems**
- How do we get people to care about things like ice caps melting? Big global problems that don't feel that relevant to people in their everyday lives. And to do change their lifestyles in things like cycle more, eat more plant based diets, save energy etc.

What is Environmental Psychology?

Study of the relationship between people and their physical surroundings – including natural and built environments

It's a **two way relationship** because we are interested in:

- How the physical environment influences us
  - E.g. looking at buildings and work places to make them more productive and healthier for us e.g. we know that people who live at the top of tower blocks tend to have lower wellbeing than people at the bottom of tower blocks or that if you spend time in natural environments and parks that helps to reduce stress and can help you concentrate more)
  - So there are loads of benefits in seeing how understanding our physical environment influences us. They are also interested in when our physical environment become a risk factor for people e.g. if you live in an area that is prone to flooding or air pollution

- AND ALSO how we influence the physical environment
  - E.g. how the things we do help cause climate change, e.g. producing energy from fossil fuels
  - What are the behaviours we can adopt that reduce that? E.g. directly in the home e.g. by turning down central heating,

- Environmental psychology is a very **Applied** field.
- It is a very interdisciplinary field, they are often feelings with people from other fields e.g. architects, town planning, engineers, environmental scientists

Research Methods in Environmental Psychology

They use methods similar to social psychology

They use both qualitative and quantitative methods, e.g.:

- **Interviews**
- **Focus groups**
  (In interviews and focus groups they are very interested in people understandings of things and are interested in the sort of themes that come out of their experiences.)

- **Surveys**
  They also do a lot of quantitative survey methods to get an overall understanding of their attitudes or behaviours

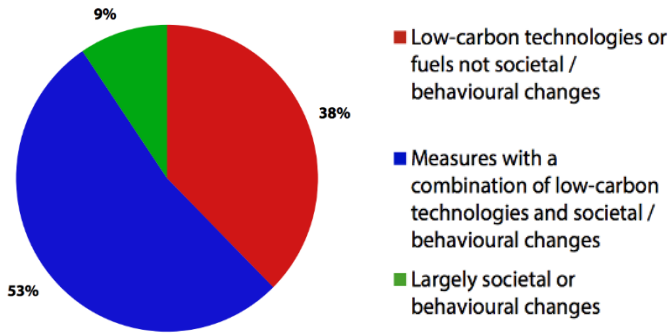
- **Lab experiments**
  They also do experiments in the lab e.g. getting people to read some information and see how that shapes their attitudes and behavioural intentions

- **Field experiments**
  They often also do field experiments where they go out into the real world and see what sort of impact didn't behaviour change interventions might have E.g. what happens if you give people some specifics types of information on bus travel, does that improve the take up of public transport

- **Documentary / media analysis**
  They also do things which combine qualitative and quanititive analysis e.g. social media analysis. They might do sentiment analysis of tweets on Twitter to see if people are positive about takng climate change action or really about climate change, what are the sorts of things that people are saying and you can quantifity some of those things e.g. what % of people said they were saving energy at home

They sometimes do studies with student samples but nearly always they use **COMMUNITY SAMPLES**- to see what the public as a whole think

Climate Change Risks & Causes


9%
38%
53%
Low-carbon technologies or fuels not societal / behavioural changes
Measures with a combination of low-carbon technologies and societal / behavioural changes
Largely societal or behavioural changes

- Climate change poses serious risks to society
- The 2018 report said that we had 12 years – until 2030 to make serious changes to our greenhouse emissions if we want any chance of limiting the major effects of climate change
- The latest IPCC assessment (1.5 degree report – 2018) confirms the impacts will range from more extreme weather events, flooding, and species extinction, to spread of disease, failure of crops and infrastructure, and human conflict. Indeed, the current Syrian conflict is likely in part due to climate change, which has led to severe drought in the region.
- Climate change poses risks to human health and wellbeing, physical infrastructure, ecosystems, etc. In this country we'd be looking at more flooding, more heatwaves and droughts, travel disruptions, spread of disease, mental health impacts
- Primarily due to human-caused greenhouse gases

Given all of these impacts to people and the environment - **they needed to see what psychologists can do to help climate change?**

- Education and Raising awareness
- Understanding what motivates people to take eco-friendly actions
- Social influence and conformity
- Cognitive bias- how was an over ride some of the reasons why people aren't paying attention to climate change
- Understanding habituation as a stressor
- How can we overcome eco-anxiety

CLIMATE CHANGE SOLUTIONS

We have 12 years to limit climate change catastrophe, warns UN

Urgent changes needed to cut risk of extreme heat, drought, floods and poverty, says IPCC

Overwhelmed by climate change? Here's what you can do

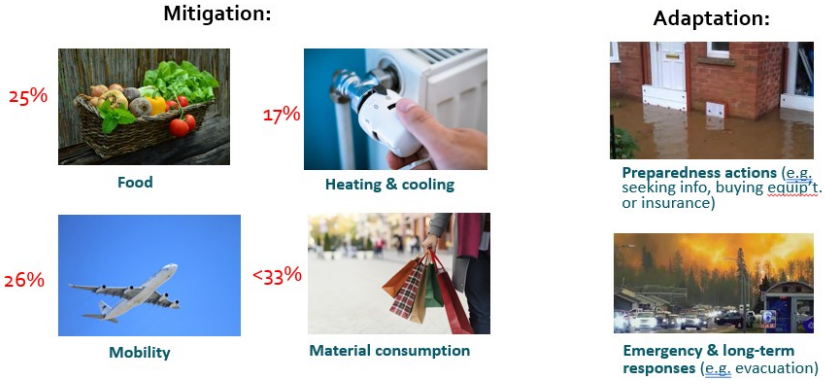
- **UK Climate Change Act** requires we get to net **zero** emissions by 2050. So by 2030 we need to be at about ½ our emissions.
- Implies significant action from <u>all</u> sections of society because basically everything that we do emits green house gas
- **Behaviour change** is a vital element of addressing climate change
- **UK CCC- climate change committee- put together a report called 'Net Zero report'**. One figure showed how much attention should be given to behavior change
- 38% is technological change e.g. more solar panels
- But the rest of the pie (63%) involves social behaviour change

Which 'behaviours' need to change?

- There's an important distinction between **mitigation** and **adaptation**
- Mitigation means we are reducing the impact that we have, were reducing our emissions
- Adaptation means adapting to the impacts of climate change
- We need behaviour change in **BOTH** of these things
- Our diet needs to change so that we eat less red meat and less dairy and eat more plant based diets because they are low carbon foods
- We need to fly and drive less
- We need to use less energy in the home and at work
- We need to buy less stuff because stuff takes carbon to make
- The % are the rough percentages that these things take up of our carbon footprint
- We also need to take measures in **ADAPTION** e.g. to protect ourself from flooding, flood boards if you live in a flood prone area. Or not going out at the hottest times as we have more droughts

People as agents of change

- Social/behavioural change is not just about consumer action i.e. buying less stuff



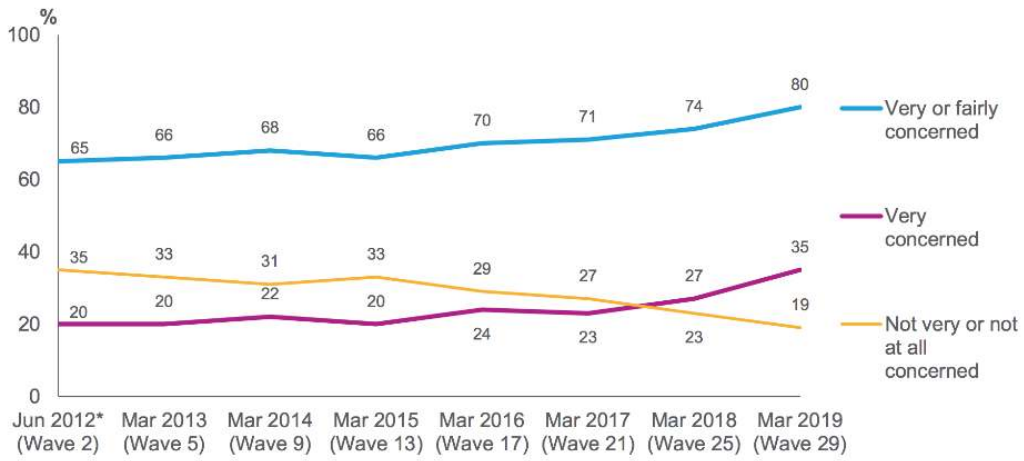
- Individual and collective action across a **range of contexts and roles** e.g. taking part in protests to get climate change addresses, cycling, eating less red meat

- Direct and indirect emission reductions

Rising Public Concern

- People are pretty concerned about climate change. This is a survey that the Government does every year and its been tracking concern about climate change and it found last year we had record levels of climate change

- This might be to do with Greta Thunburg and extinction rebellion protests and things and media coverage of some of the extreme weather conditions we had e.g. the Australian bush fires.



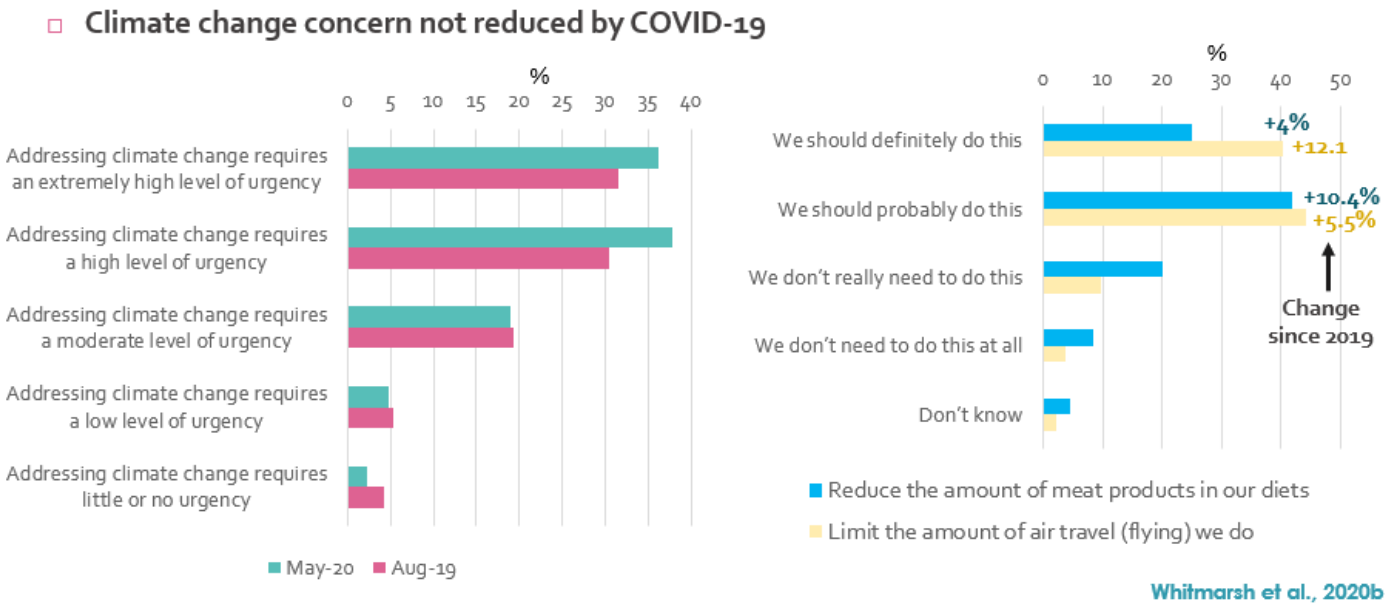
Concern even higher than last year

- **Climate change concern has not been reduced by COVID-19**

- **Lorraine did a survey in May 2020 right at the end of lockdown and has been a increase in concern from the same survey last year**. About ¾ of people think there is a extremely high/high level of urgency needed

- They also asked people about reducing meat in diets and limiting air travel which are two of the biggest things you can do to reduce your carbon footprint and they found an increase in support for doing these measures compared to last year.

- At the begining of the first lockdown our emissions did come down a lot because basically no one was travelling. And work places were using a lot les energy because they had less people in. This then meant that energy at home went up because a lot of people were working from home. But overall emissions did come down by about 25% which is great


Climate change concern not reduced by COVID-19
%
0 5 10 15 20 25 30 35 40
Addressing climate change requires an extremely high level of urgency
Addressing climate change requires a high level of urgency
Addressing climate change requires a moderate level of urgency
Addressing climate change requires a low level of urgency
Addressing climate change requires little or no urgency
May-20
Aug-19
%
0 10 20 30 40 50
We should definitely do this
+4%
+12.1
We should probably do this
+10.4%
+5.5%
We don't really need to do this
We don't need to do this at all
Don't know
Change since 2019
Reduce the amount of meat products in our diets
Limit the amount of air travel (flying) we do
Whitmarsh et al., 2020b

Barriers to low-carbon behaviour change

We've seen that the majority of people are concerned about climate change and think we should be doing something about it. But there is a difference between what people say and how they behave

Because often doing the right thing and the low carbon thing can be quite difficult or expensive

Individual barriers

- Lack of knowledge about causes, consequences, solutions
- Uncertainty and scepticism
- Distrust in information sources
- Externalising responsibility and blame
- "Drop in the ocean" feeling
- Technology will save us
- Climate change is a distant threat
- Other things are more important
- Reluctance to change lifestyles
- Fatalism (too late to act/ can't do anything)

Social & structural barriers

- **Lack of action by governments, business, industry**
- **Free-riding** (policy preference for voluntary measures)- everyone doesn't want to make sacrifices because they don't see anyone else making them
- **Social norms and expectations – its normal to have a highly materialistic life with high consumption**
- **Lack of enabling initiatives and facilities** (e.g., regular/affordable public transport, no cycle path)

HOW CAN WE CHANGE BEHAVIOUR?

We often divide behaviour intervention actions into downstream and upstream

IRISHTIMES.com

Monday, January 25, 2010

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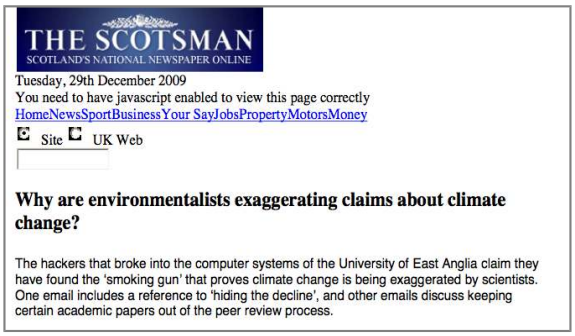
US politicians are committing treason against the planet

Creationists and climate change deniers have this in common: they don't answer their critics. They make what they say are definitive refutations of the science. When these refutations are shown to be nonsense, they do not seek to defend them. They simply switch to another line of attack.


THE SCOTSMAN
SCOTLAND'S NATIONAL NEWSPAPER ONLINE

Tuesday, 29th December 2009

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Site UK Web

Why are environmentalists exaggerating claims about climate change?

The hackers that broke into the computer systems of the University of East Anglia claim they have found the 'smoking gun' that proves climate change is being exaggerated by scientists. One email includes a reference to 'hiding the decline', and other emails discuss keeping certain academic papers out of the peer review process.

Downstream – influencing individuals' choices directly

- Information/advertising
- Modelling (social learning); norm-based approaches
- Getting people to think differently
- E.g. putting carbon emissions on menus so you can see how much carbon you are emmiting by eating different things

Chickpea & Mushroom Roll (V) 0.3kg CO^2e £4.95

Café Chips (V) 0.1kg CO^2e With garlic mayo £3

Cauliflower Fritter (V) 0.28kg CO^2e £4.25

For a taste of our supper menu try our Lamb Stew

Lamb & Damson Stew 3.19kg CO^2e £13

Locally sourced lamb, damson, carrots, potatoes, baby onions, celery with crusty ciabatta.

Upstream – influencing context/situation of action

- economic measures
- changes to available products and services e.g. low carbon options are more available
- changes to built environment e.g. changing design of towns to make it easier to walk and cycle
- education (and changing social norms) - Or e.g. by just changing the number of vegetarian and vegan options on a menu and reducing the meat options means that people are more likely to eat vegetarian and meat food

Is ignorance the problem?

- **An important way to reduce climate change is through education and awareness raising. Information can inform decision making**
- **But they did a big survey across loads of researchers and scientists all round the world. Thy found that in fact climate change experts fly significantly more often than other scientists.**
- Climate change experts took median 2-3 flights per year; non-experts took two flights per year
- Both groups took similar no. of personal flights (1-2 per year)
- Climate change professors fly the most!
- **So they concluded that Knowledge doesn't lead to behaviour change**

THE TIMES Today's sections Past six days Explore Times Radio

Climate experts fly more often than other scientists

Ben Webster, Environment Editor

Tuesday October 20 2020, 12.01am, The Times

Impact of Climate Change Information

- They did kind of know about this because they did an experiment many years ago looking at how people interpret climate change information in different ways, that is consistent with what they already believe

- **Corner et al., 2012**
  - 2 x 2 between-subjects design:
  - sceptical / non-sceptical articles (manipulated IV)
  - high / low climate scepticism (non-manipulated IV)

- If we give people (mixed) information about climate change, will they evaluate and interpret it according to their existing beliefs ('assimilation bias')?

- **Assimilation bias = conformation bias –** people like to read information which agrees with what they already believe and tend to ignore information which challenges their existing beliefs

- They mocked up 2 newspaper editorials about climate change (one was a sceptical view that climate change is exaggerated and isn't that bad, and one that is saying climate change is bad and we aren't doing enough)

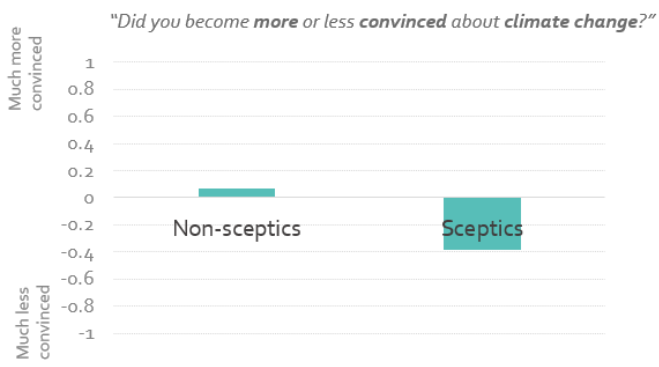
- They measures peoples attitudes to climate change before and after they read the 2 editorials. They asked the participants how reliable they thought the two articles were

- Experiment: measured participants' (N=173) attitudes to climate change before and after reading two newspaper editorials that made opposing claims about the reality and seriousness of climate change, i.e. sceptical and non-sceptical editorials

Information can polarise opinion

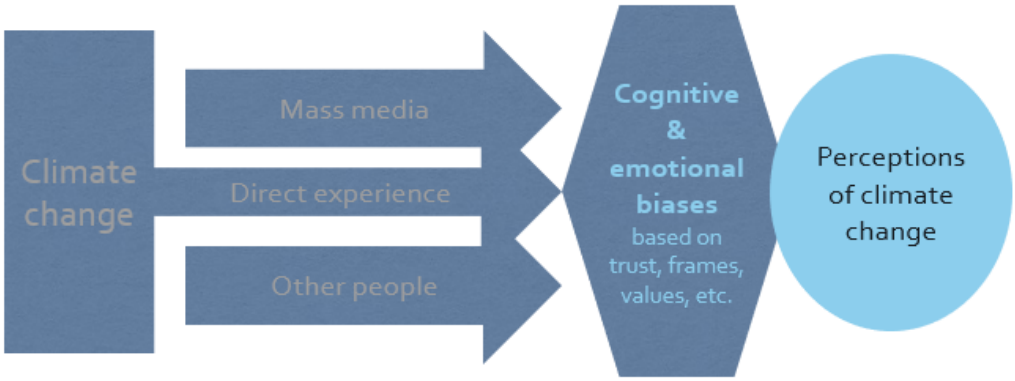
- **They asked the participants how reliable they thought the two articles were**

- They found that sceptics (people who didn't really believe in climate change) rated the skeptical article as more reliable; and non-sceptics rated the non-sceptic article as more reliable. They also found that there attitudes polarized even further after reading the information: **So this shows it is difficult to change peoples attitudes once they have a fixed view**



Information is filtered through biases

- The reason for this is because we have a lot of cognitive and emotional biases that act as filters for any information about climate change (Clayton et al., 2015)
- We take all information and then process it through our values, pre-existing beliefs which means we form a particular perception of climate change which is why we see a lot of variation of peoples views
- This means that it is difficult to get people to change their opinion, unless we take account of those existing filters.

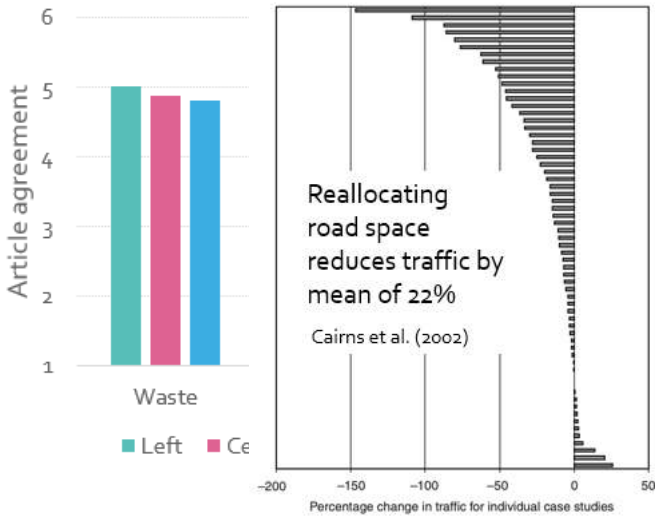


Effective communication targets audience values

- So they did some experiments to try to give people different messages that resonate with different values to try to overcome some of the polarisation that we tend to see.
- We know that people with right-of-centre political views tend to be less concerned about climate change and people left of centre tend to be more concerned.
- Part of the reason for this is because the way climate change is talked about, it tends to be talked about in a way that appeals more to people left wing and their values in terms of things like equality and equity, protecting vulnerable groups etc.
- So they tried using different messages to try and target different politicial stances.
- **Segmenting** audiences by their politics shows left-leaning prefer 'justice' narratives of climate change, while right-leaning prefer 'waste' or patriotism framed messages (i.e., saves money or good for economy/country) **> reduces polarization**

- **Talking about Economics benefits for the British Economy – there was a slight increase in right wing people like it**

- **They managed to really reduce polarization and have a broader when the messages were about waste** - they were saying save money because it is just common sense , don't be wasteful and it will save yourself money on your energy bills, so there is a bit of self interest.



Whitmarsh & Corner, 2017; cf. Bain et al., 201; Unsworth & McNeil, 2017

- They found that the more you could emphasis additional **co-benefits to actions**(e.g., community, health, finances, lower bills, green jobs available, healthy for you to cycle) of action generally resonates more than environmental rationale

Effective communication targets audience values

- Reducing red and processed meat is good for environment *and* for health – which message works best?

- In this paper which only got reduced a few weeks ago, she tried to get people to reduce there red meat consumption over a period of 2 weeks. They gave participants a message every day by a chat box on Facebook which encouraged them to eat less red meat either because it'll help the environment or it said there will be health benefits or a combination of these two.

- They found that in all 3 messaging conditions they saw a reduction in the consumption of red and processes meat in that two week period. They saw that it was the combine message that had the greatest effect a month later. So it suggests the more reasons they give people to change their behaviour, the more effective it will be.

Study Reminder Cardiff
If you eat only a small amount of red and processed meat, you will protect the environment by reducing climate change and you will protect your health by reducing the likelihood of developing liver disease.
Click on the "I understand" button to confirm that you have read the message.

'Combined' condition message (Chatbot)

Wolstenholme et al., 2020

Information alone isn't effective **enough** to change behaviour, we also need to do things to change the physical space e.g. design roads to be more safer for cyclists and pedestrians and getting rid of parking

Transport behaviours shaped by urban design

Norms and incentives

- Social norm messages: *"26% of commuters at our university have switched to more sustainable modes of transport to campus"*

- Decreased private vehicle use (for commuting) by approximately **five times**, compared with baseline (Kormos et al., 2015)

E.g., London congestion change:

- Around 30% reduction in congestion and fewer accidents and emissions since launch in 2003
- Revenue (£122m) largely spent on improving bus services (TfL, 2006)

Informative social influence - people are more likyl to change behaviour if other people are doing it rather than just if it is good for the environment.

Getting the timing right…

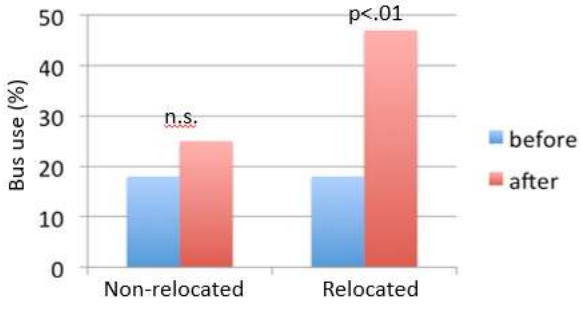
Habits are one of the biggest barriers to behaviour change

- habit leads to 'tunnel vision', e.g., habitual drivers tend not to ignore information about other modes. Each morning we don't weigh up which mode of transport is the most effective for me to get ot work, you just take the most you have used everyday for the last 20 years
- make reconsideration of old habits unlikely, and work against effectiveness of info. campaigns
- But when habits are disrupted by events/decisions – e.g., relocation, new job, starting a family – behaviour-relevant information becomes more salient and influential
    - = ***Habit discontinuity hypothesis***

BUT when habits are disrupted there is a good place to give people an intervention

Moving house disrupts habits

- **Bamberg, 2006**
- E.g. when you move house you don't any more have the same way you always travel to work and there is room for information to make your new habit of getting to work better for the environment e.g. cycling
- Tailored public transport info and 1-day pass to promote PT use given 6-weeks post-relocation was more effective (inc. from 18% to 47%) than when given the same information to those not relocating



Is COVID-19 a 'moment of change' to promote sustainable lifestyles?

Lockdown disruption has created some low-carbon habits …

- Less travel (work, shopping, etc.)
- Saving energy
- Fewer showers
- Less food waste
- Fewer takeaways
- Buying less
- More gardening / creative hobbies
- *Many intend to keep these habits*

…but these need to be locked in with appropriate infrastructure, incentives, norms, etc.

E.g. more cycle lanes, more incentives to buy plant based foods

Even higher public concern about climate change and support for net zero policies than 2019

Whitmarsh et al., 2020b

CONCLUSIONS:

Pamela Jacobsen (clinical psychology)

- **Radical social / behaviour change is essential for tackling climate change**
- **Psychology has a vital role in understanding and changing perceptions and behavioural responses to climate change**
- **Information is rarely enough to change behaviour** – 'attitude-behaviour gap'
- **We need multiple upstream and downstream interventions**
- **We need to get the timing right** – when habits are disrupted (e.g. covid-19)
- Psychology is also needed to understand and address the mental health impacts of climate change, collective and political actions, organisational change, etc…

Key readings:

- Clayton, S., Devine-wright, P., Stern, P., Whitmarsh, L., Carrico, A., Steg, L. Swim, J. & Bonnes, M. (2015). Psychological research and global climate change. *Nature Climate Change, 5,* 640-646.
- Whitmarsh, l. & Corner, A. (2017). Tools for a new climate conversation: A mixed-methods study of language for public engagement across the political spectrum. *Global Environmental Change, 42*, 122–135.
- Flying, COVID and other relevant research: **www.cast.ac.uk/publications**

WEEK 8 NOTES LECTURE 20/11/2020 – Friday

Clinical Psychology – Pamela Jacobsen

- 1 PDF papers left on moodle to make notes on: https://moodle.bath.ac.uk/pluginfile.php/1661162/mod_resource/content/1/Jacobsen%20et%20al%20%282020%29%20MBCI%20on%20acute%20psychiatric%20wards_trial%20paper.pdf - Mindfulness-based crisis interventions (MBCI) for psychosis within acute inpatient psychiatric settings; a feasibility randomised controlled trial Pamela Jacobsen, Emmanuelle Peters, Emily J. Robinson and Paul Chadwick

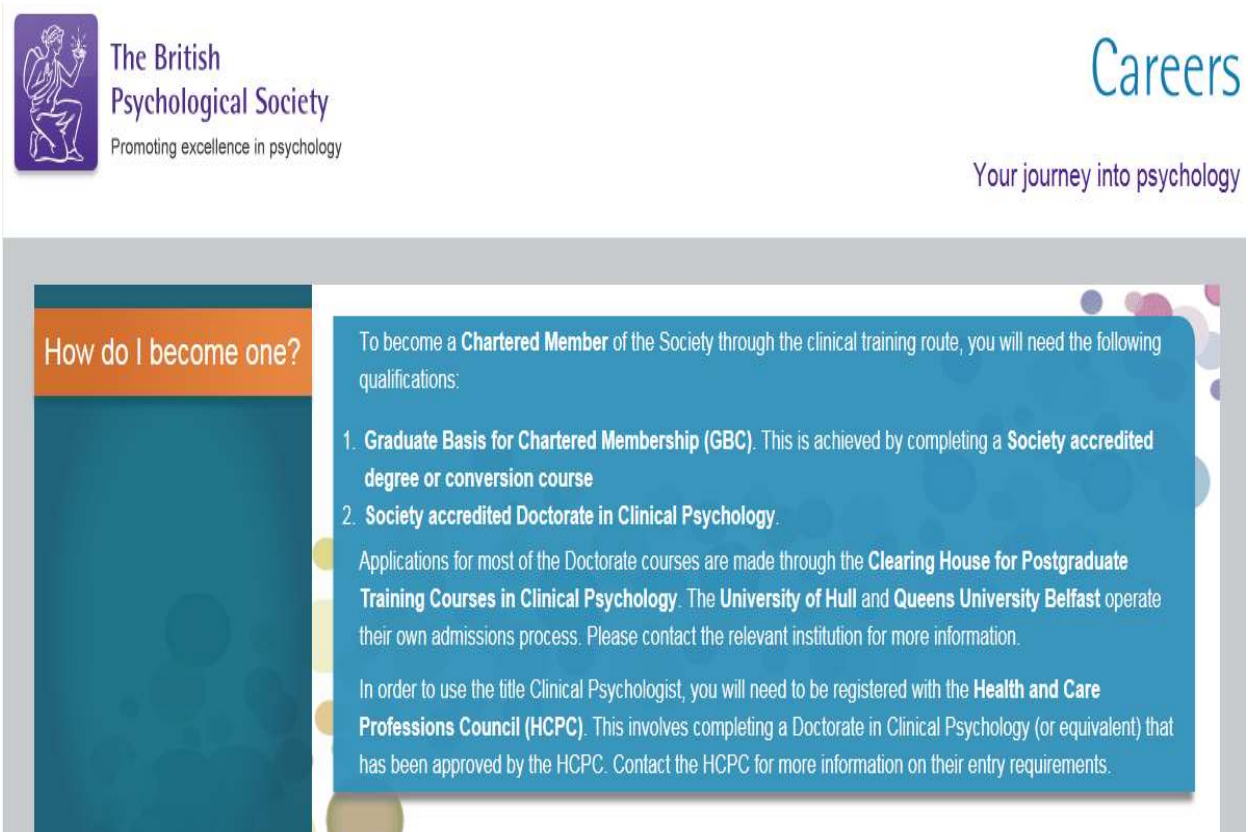
- Can you summarize their main area? Clinical psychology- science practitioner
- Do you understand their main methods?
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?

Using evidence to inform mental health interventions

- She is also part of the newly formed Bath Centre for Mindfulness and Compassion (BCMC)
- She is also part of the Addiction and Mental Health Group (AiM) with Tom

Clinical Psychology

- She is going to focus on being a science practitioner
- She primarily works on the doctor in clinical psychology course at bath -GOOD PERSON TO KNOW!!
- They are commissioned by Health Education England – so its like a medical doctor- and its paid for by NHS and you get paid to train.
- It is a 3 year full time course
- There is always a set number of places available – normally it is about 17, this year it is 24


The British Psychological Society
Promoting excellence in psychology
Careers
Your journey into psychology
How do I become one?
To become a Chartered Member of the Society through the clinical training route, you will need the following qualifications:
1. Graduate Basis for Chartered Membership (GBC). This is achieved by completing a Society accredited degree or conversion course
2. Society accredited Doctorate in Clinical Psychology.
Applications for most of the Doctorate courses are made through the Clearing House for Postgraduate Training Courses in Clinical Psychology. The University of Hull and Queens University Belfast operate their own admissions process. Please contact the relevant institution for more information.
In order to use the title Clinical Psychologist, you will need to be registered with the Health and Care Professions Council (HCPC). This involves completing a Doctorate in Clinical Psychology (or equivalent) that has been approved by the HCPC. Contact the HCPC for more information on their entry requirements.

SCIENTIST-PRACTITIONER MODEL

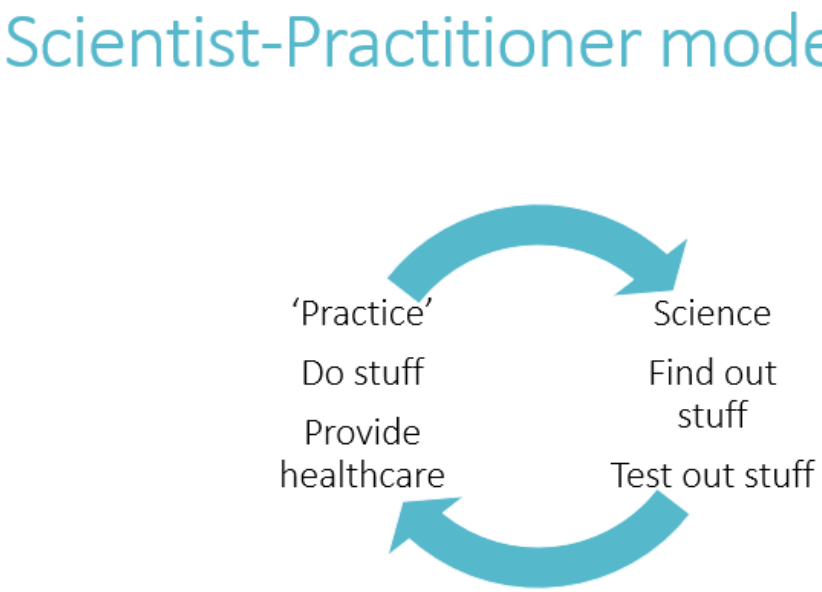
"The scientist-practitioner model produces a psychologist who is uniquely educated and trained to generate and integrate scientific and professional knowledge, attitudes, and skills so as to further psychological science, the professional practice of psychology, and human welfare. The graduate of this training model is capable of functioning as an investigator and as a practitioner, and may function as either or both, consistent with the highest standards in psychology." (Belar & Perry

It's the relationship between what they are doing in practice to patients and the research and science.

What they are doing in practice should be based on research and science – but also the other way around – what we see in practice should inform research

An example of how research can effect practice.

Is psychological de-briefing helpful immediately after a traumatic event?



Psychological De-Briefing

- Whenever there's been a big psychological trauma that has effected a lot of people all at once (e.g. terrorist attack, natural disaster) very often as part of the emergency response there will be psychological care/debriefing.
- Usually delivered within several days of a traumatic event
- Aims to reduce emotional distress and prevent development of PTSD
- Based on the idea that its bad to "bottle things up"
- Person is encouraged to ventilate thoughts and feelings about trauma with a professional
- Professional provides psycho-education on trauma

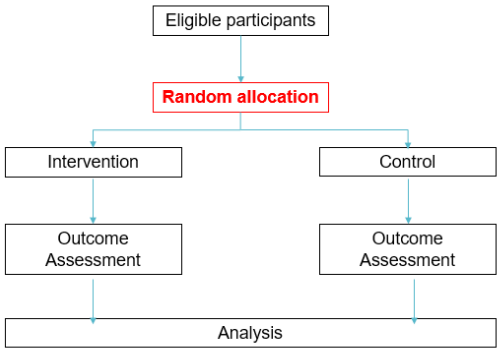
This all seems really credible but the problem is…..it doesn't work

- Increasing numbers of studies show it doesn't help, and may in fact have a **detrimental** impact
- The routine use of single session debriefing given to non selected trauma victims is not supported. No evidence has been found that this procedure is effective. Rose, S., Bisson, J., & Wessely, S. (2001). Psychological debriefing for preventing post traumatic stress disorder (PTSD)
- There's evidence that it might create worse outcomes than if you hadn't provided any support
- Its very hard to overturn ideas once they have become well established
- ……**although most people who receive debriefing endorse it as helpful!**
- Possible that it interferes with 'normal' psychological healing processes
- We are harming rather than helping if we don't follow the evidence base
- Every health-care system in the world has limited resources
- Spending money on interventions which don't work (or harm) cannot be justified
- Detracts from other things which could be invested in (e.g. evidence-based psychological therapies for people who develop PTSD)

Evidence hierarchy

The higher you go up the hierarchy, the more robust the science

Randomised Controlled Trials



Why are RCTs the gold standard?

- Randomization prevents selection bias
- Control groups control for natural recovery
- Blinding controls for placebo effects
- Random allocation limits confounding factors
- RCT'S are one of the only ways that we can get CAUSAILITY
- A lot of the research we look at is cross-sectional and correlational
- It's a really important rich resource
- With RCT you have to give the other group something which is treatment as usual. You couldn't take people with depression and give half nothing and half your new drug – you would have to give the other group CBT because that is treatment as usual for depression, otherwise you are depriving them of that

Why the need for pilot/feasibility trials?

- **Large RCTs are expensive, time-consuming and difficult to run**
- Don't want to get into a really big trial if its not really feasible
- Approximately 50% of RCTs fail to reach their recruitment target (and so can't answer the research question)
- Drop-out from either the treatment or follow-up stage can be high – you want to minimis this as much as possible

Feasibility study: "Can this study be done?"
Important feasibility outcomes:-

- Number of eligible participants (don't want to set your exclusion criteria so broad you cant get enough participants)
- Willingness of clinicians to refer participants to study
- Willingness of participants to be randomised
- Recruitment rate (how long to reach target?)
- Acceptability of intervention – Do participants drop-out?
- Feasibility of follow-up – proportion of participants lost to follow-up at different time points
- Availability of data needed (e.g. data on hospital admissions)

Pamela's Research

- Pamela did a feasibility trial of offering people a brief mindfulness intervention for people on acute inpatient psychiatric wards.
- They needed to do a feasibility trial to make sure they would be able to get enough participants

Jacobsen *et al. BMC Psychiatry* (2020) 20:193
https://doi.org/10.1186/s12888-020-02608-x

BMC Psychiatry

RESEARCH ARTICLE Open Access

Mindfulness-based crisis interventions (MBCI) for psychosis within acute inpatient psychiatric settings; a feasibility randomised controlled trial

Pamela Jacobsen[1,2*], Emmanuelle Peters[1,3], Emily J. Robinson[4,5] and Paul Chadwick[1,2]

Abstract

Background: Inpatient psychiatric care is a scarce and expensive resource in the National Health Service (NHS), with chronic bed shortages being partly driven by high re-admission rates. Brief inpatient talking therapies for psychosis could help reduce re-admission rates. The primary aim was to assess feasibility and acceptability of a novel, brief, mindfulness-based intervention for inpatients with psychosis. The secondary aim was to collect pilot outcome data on readmission rate, at 6 and 12 months (m) post discharge, and self-report symptom measures at 6 m.

Methods: The amBITION study (Brief Talking theraples ON wards) was a parallel group, feasibility randomised controlled trial (RCT). In addition to treatment as usual (TAU), eligible inpatients with psychotic symptoms were randomly allocated to receive either (Mindfulness-Based Crisis Intervention; MBCI) or a control intervention (Social Activity Therapy; SAT), for 1–5 sessions.

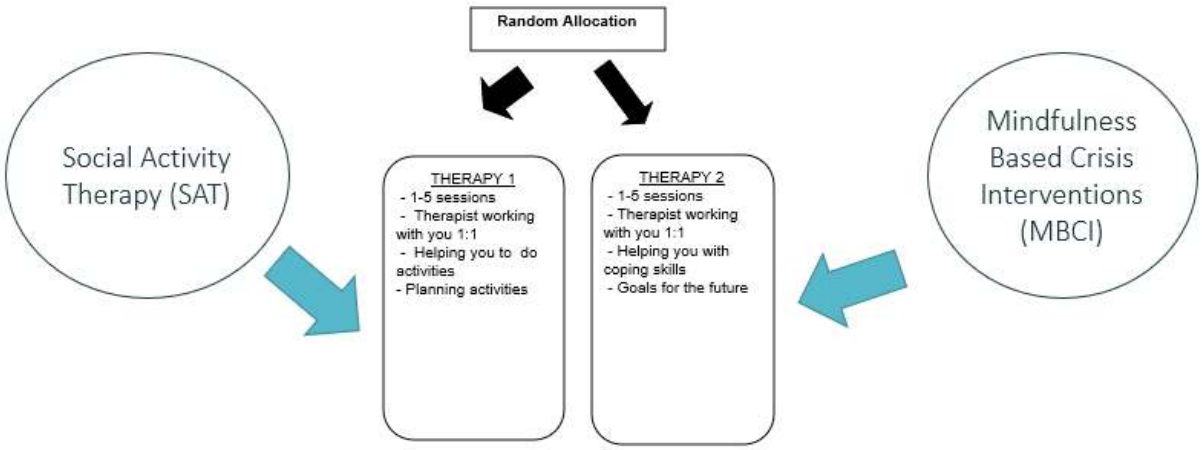
Results: Fifty participants were recruited (26 MBCI; 24 SAT); all received at least 1 therapy session (mean = 3). Follow-up rates were 98% at 6 m and 96% at 12 m for service use data extracted from clinical notes, and 86% for self-report measures. At 6 m follow-up, re-admission rates were similar across groups (MBCI = 6, SAT = 5; odds ratio = 1.20, 95% CI: 0.312–4.61). At 12 m follow-up, re-admissions were lower in the MBCI group (MBCI = 7, SAT = 11; odds ratio = 0.46, 95% CI: 0.14–1.51). Three participants experienced adverse events; none was related to trial participation.

Concerns about inpatient therapy:

- People can't concentrate enough….
- It's not the right time…..
- People aren't in for long enough…..
- Best not to open a can of worms….
- But Pamela felt that some people do benefit from therapeutic interventions during crisis acute admissions so it is important to trial it out
- If you go into inpatient (e.g. green parks) the treatment is predominantly medication and there is no therapy available

Rationale for inpatient therapies

- Service users want better access to inpatient therapies (Wood and Alsawy, 2016)
- Where inpatient therapies are available, uptake is good (Reynolds et al, 2017)
- Inpatient admission may present 'window of opportunity'
- Not all service users will want or be offered long-term therapy on discharge
- Helps address health inequalities in access to therapies (e.g. people from BME backgrounds over-represented in inpatient populations, Bhui et al (2003))


Random Allocation
Social Activity Therapy (SAT)
THERAPY 1
- 1-5 sessions
- Therapist working with you 1:1
- Helping you to do activities
- Planning activities
THERAPY 2
- 1-5 sessions
- Therapist working with you 1:1
- Helping you with coping skills
- Goals for the future
Mindfulness Based Crisis Interventions (MBCI)

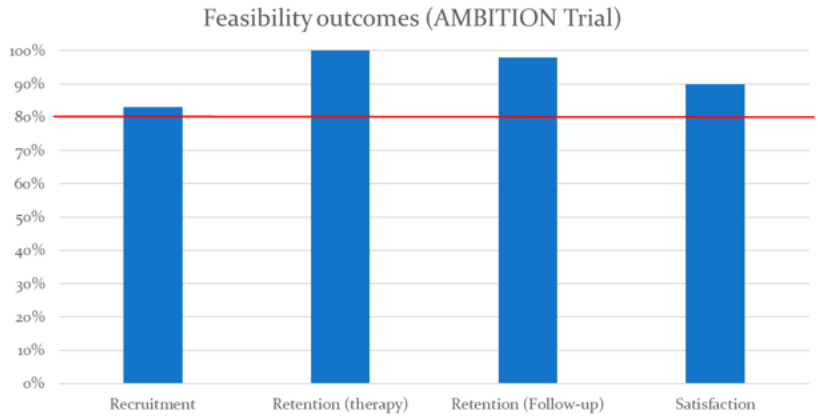
AMBITION TRIAL (Jacobsen et al, 2020)

- Patients either got the mindfulness therapy or a control.
- The control was like a psychological placebo. It was just doing an activity one on one with somebody nice e.g. playing cards or listing to music

Gemma Taylor
(epidemiology and addiction)

These are the feasibility outcomes:

- Before you do a trial it is best practice to see a bench mark for what the trial needs to beat
- They had good retention rates (100%) , but it was a very brief intervention
- They had good follow up rates and followed people up 6 and 12 months after the left hospital



WEEK 9 NOTES LECTURE 23/11/2020 – Monday

Clinical Psychology - Dr Gemma Taylor

- Two PDF papers left on moodle to make notes on: https://moodle.bath.ac.uk/pluginfile.php/1445022/mod_resource/content/3/Taylor%202014%20BMJ.pdf Change in mental health after smoking cessation: systematic review and meta-analysis OPEN ACCESS Gemma Taylor doctoral researcher, Ann McNeill professor of tobacco addiction, Alan Girling reader in medical statistics, Amanda Farley lecturer in epidemiology, Nicola Lindson-Hawley research fellow, Paul Aveyard professor of behavioural medicine

- https://moodle.bath.ac.uk/pluginfile.php/1445021/mod_resource/content/3/Taylor%202019%20Pilot%20and%20Feasibility%20Studies.pdf IntEgrating Smoking Cessation treatment As part of usual Psychological care for dEpression and anxiety (ESCAPE): protocol for a randomised and controlled, multicentre, acceptability, feasibility and implementation trial Gemma Taylor1, Paul Aveyard, Kate Bartlem, Alison Shaw , Jeremy Player , Chris Metcalfe , David Kessler and Marcus Munafò

- Can you summarize their main area? Using evidence to inform mental health interventions

- Do you understand their main methods? Epidemiology and Addiction

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

! This work is all quantitative and biologically reductionist, inferences are made on population level based on very specific criteria that people are strategies and measures on , rather than individual experience.

! There are plenty of people that will have self reported that smoking makes them feel better. If you had taken a qualitative approach it would be hard to ignore that, but when you look at thousands of being and zoom out and look at all the biases you see confounding influences accounted for

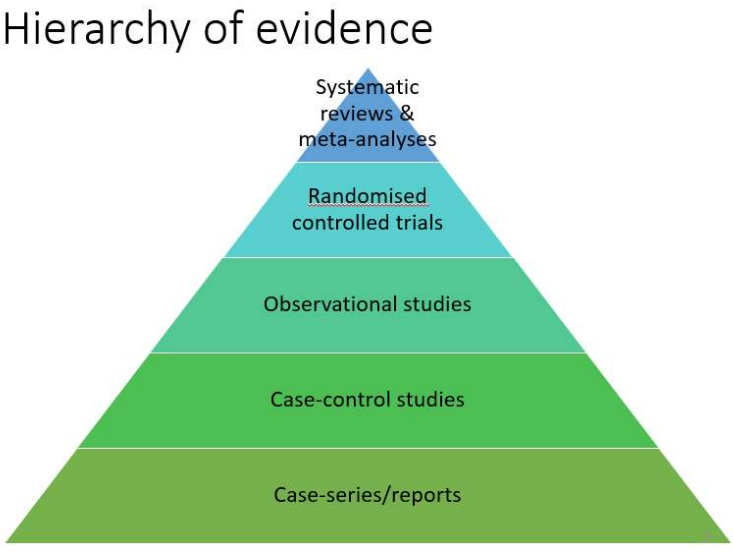
Clinical Psychology
Using evidence to design mental health interventions

- Gemma is a fellow looking at how we can use meta-analytic data and RCT and population level data to make inferences that are important for individuals, optimising policies and practices
- Gemma is a research lead for the Addiction and Mental Health Group (AiM)
- Using evidence to design complex interventions in clinical psychology – smoking and mental health

Learning outcomes:

- ✓ Understand some weaknesses of epidemiological methods
- ✓ Understand some ways that we can overcome these weaknesses in epidemiology
- ✓ Understand methods of intervention development
- ✓ Understand the reasons for doing a feasibility and pilot randomised controlled trial (RCT)

- The hierarchy has to do with the amount of casual influence we can take from these different levels to inform clinical practice and policy
- Case-series/case reports – usually from 1 individual, these give some idea of clinical phenomena that are going on but you cant really generalise from 1 person
- Observational studies- where we follow people over time or look at a snapshot of data over

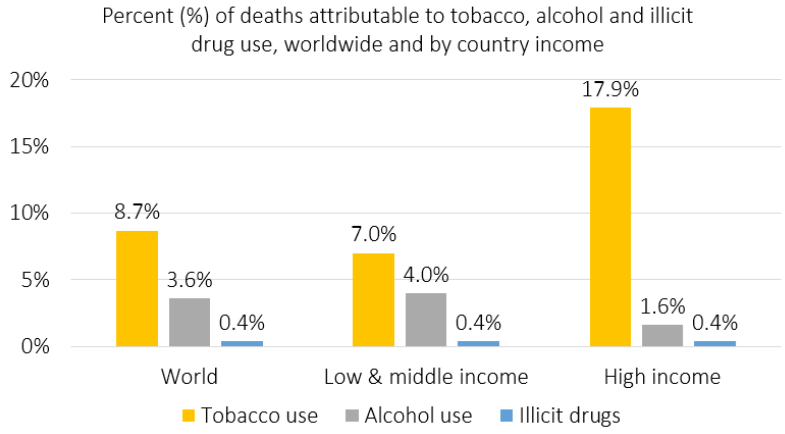


time, they look at peoples behaviour as it naturally occurs, there is minimal manipulation and there's no intervention

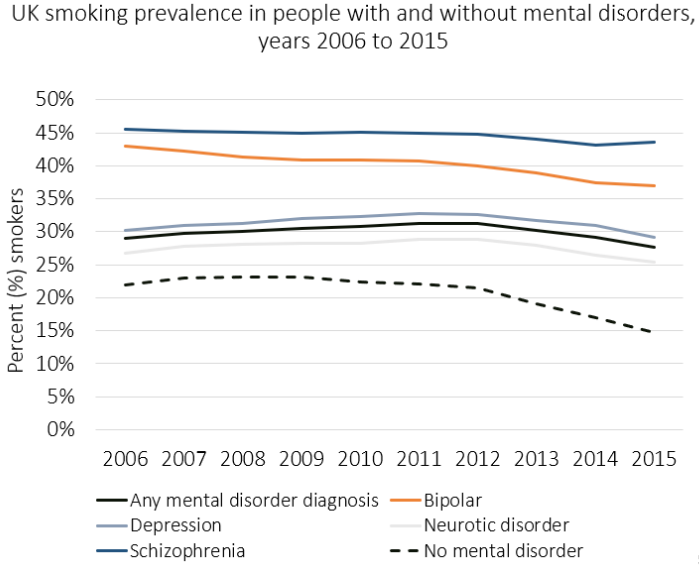
- Gemma's work focuses on looking at observational data and trying to find if these are targets for future interventions

SMOKING TOBACCO AND MENTAL HEALTH

- Most of Gemma's work focuses on tobacco
- Tobacco is the world's leading preventable cause of serious illness and premature death
- Tobacco use causes the highest amount of deaths in high income counties e.g. UK
- High income normally means high education, so we should know better



- She looks at smoking and mental health because people with mental disorders smoke wayyyy more than people without
- These data are from primary care, they did an analysis of CPRD data, which is GP records, from over 65 million patients in the UK
- Smoking prevalence in people with no mental disorder is around 20% (there has been a big drop since the introduction of E-cigarettes.



- People with mental disorder smoke a lot more, e.g. people with schizophrenia smoke about 45%, and the numbers haven't really gone down since the introduction of E-cigarettes

Why smoking and mental health research?

- Higher rates of smoking-related disease and death – it's a huge cause of health inequality
- People with mental disorder have worse withdrawal, more addicted, higher relapse rates.
- Standard smoking treatments are less effective.
- Reduction in life expectancy by up to 25 years – e.g. peoples with schizophrenia die up to 25 years earlier than those without schizophrenia, quite a substanical proportion of this is from tabaco use

A **DRIVING FACTOR** for smoking is a fear that quitting will worsen mental health

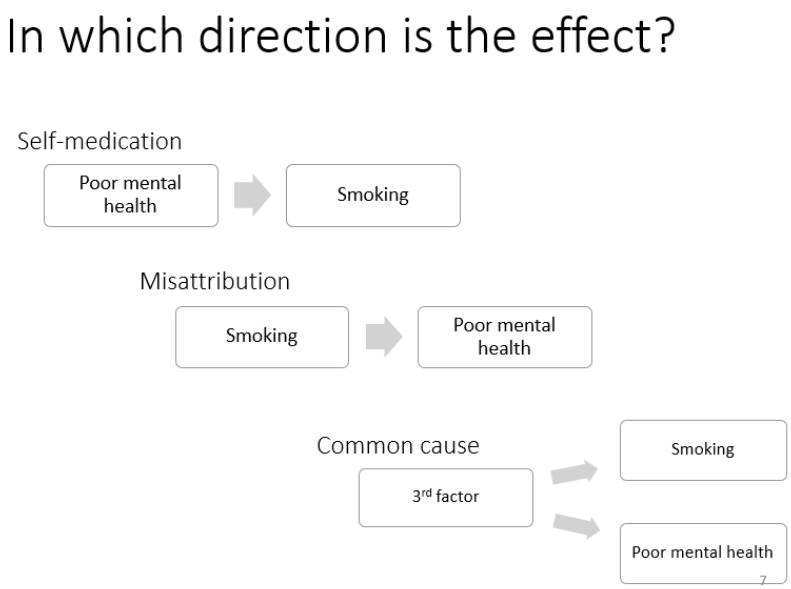
Gemma did her PhD on this topic

They looked at 3 different hypothesis (Likely the answer is that all three of these are true to some extent

1) **Poor mental health causes people to smoke** - people with mental health benefit from smoking, tobacco elevates their mental health symptoms

2) **Misattribution hypothesis** – smoking causes poorer mental health. Smoking damages not only physical health but also the brain and mental health .People mistake the ability of tobacco to alleviate symptoms of stress and low mood. When tabaco alleviate symptoms of anxiety, people think this is elevating their mental health problem, but its not its just reelevating the symptoms of their addiction.

3) **3rd factor**



– common cause hypothesis – is factor which poor mental and smoking to e.g. smoking and health have a gene profile or environmental factors

there a 3rd leads to health co-occur mental similar

risk

- For some research she asked what happens to people's mental health after quitting smoking
- **They conducted a systematic review and meta-analysis looking at longitudinal studies (studies that examined the CHANGE in mental health from before people quite smoking, to after people quit smoking and then compare that to people that didn't quit smoking**
- They looked at studies which had follows up which were **greater than 6 weeks** (to make sure people

What happens to mental health after quitting smoking?

BMJ

BMJ 2014;348:g1151 doi: 10.1136/bmj.g1151 (Published 12 February 2014)

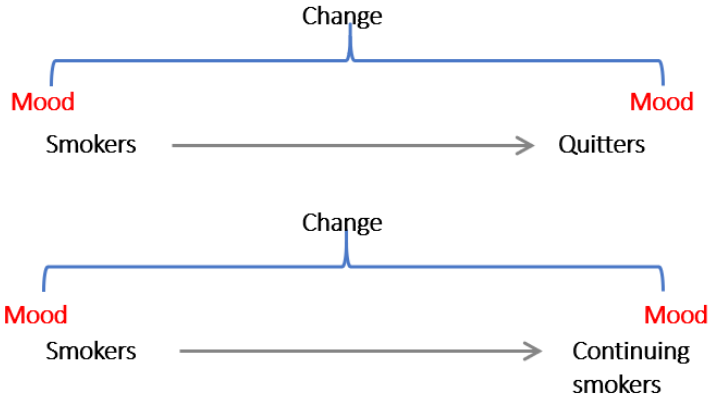
RESEARCH

Change in mental health after smoking cessation: systematic review and meta-analysis

OPEN ACCESS

Gemma Taylor *doctoral researcher*[1 2], Ann McNeill *professor of tobacco addiction*[2 3], Alan Girling *reader in medical statistics*[1], Amanda Farley *lecturer in epidemiology*[1 2], Nicola Lindson-Hawley *research fellow*[2 4], Paul Aveyard *professor of behavioural medicine*[2 4]

Study aim – meta-analysis



Methods:

- Inclusion: Longitudinal data, adults, any population, any language (they translated a few studies), any wellbeing/mood outcome
- Exclusion: Follow-up measured during withdrawal period
- Analysis: Meta-analysis

Study characteristics:

- 26 studies
- 17060 participants
- Mood outcomes - Anxiety, depression, stress, positive affect, QOL (quality of life)
- General, psychiatric, pregnant women, chronic physical conditions, post-surgical
- Follow-up: 7 weeks to 8 years
- 11 cohort, 14 secondary analyses of cessation interventions, 1 randomised trial
- They included data from three different types of studies cohots, secondary analysis's of RCT's and actual RCT

Results - anxiety

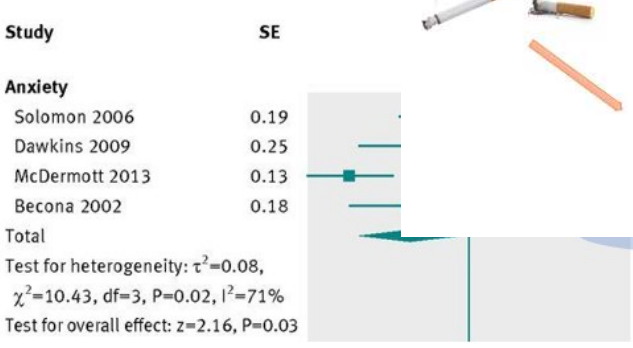
There was an association between quitting smoking and a reduction in anxiety symptoms.

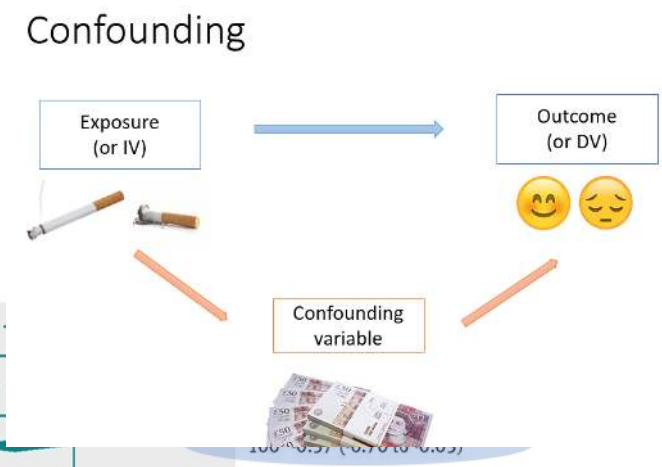
So people who quit smoking experience a benefit to their mental health.

On the green graph, the vertical line is the null line and anything that crosses it to the right is not significant. And the diamond at the bottom is the pooled effect, the pooled standard mean difference

Results – depression

They found similar results for depression outcome. **People who quit smoking experience benefits to their mental health, and their mental health improved over time**.





- One of the issues with this type of study is there are potentially a number of confounding factors that they cant account for.
- E.g. people quit smoking and therefore saved money – so there mental health improves because of that not just because of the smoking

Confounding

Study	Adjusted for, baseline	Outcome	SMD (95% CI)	
			Unadjusted	Adjusted
Blalock et al (2008)	CO expiration, nicotine withdrawal score, treatment	Depression	-0·54 (-1·42 to 0·34)	-0·58 (-1·00 to -0·16)
		Positive affect	0·59 (-0·29 to 1·47)	0·68 (0·24 to 1·12)
McDermott (2012)	Age, nicotine dependence, CPD	Anxiety	-0·62 (-0·88 to -0·36)	-0·74 (-1·00 to -0·48)

- They did the best the could do with the data they had
- They compared studies with adjusted and unadjusted estimates, some studies adjusted their outcome to adjust for things which could be confounding factors
- You have hypothetical variants that might effect the variance in the data
- Gemma was particularly looking at whether adjusting the outcomes changes the effect size, or the effect direction.
- They didn't see that is changed in direction and it barely changed in size. So the relationship between the factors interested in were resilient to potential mediating factors
- BUT these adjustments aren't really good enough to eliminate the role of confounding factors

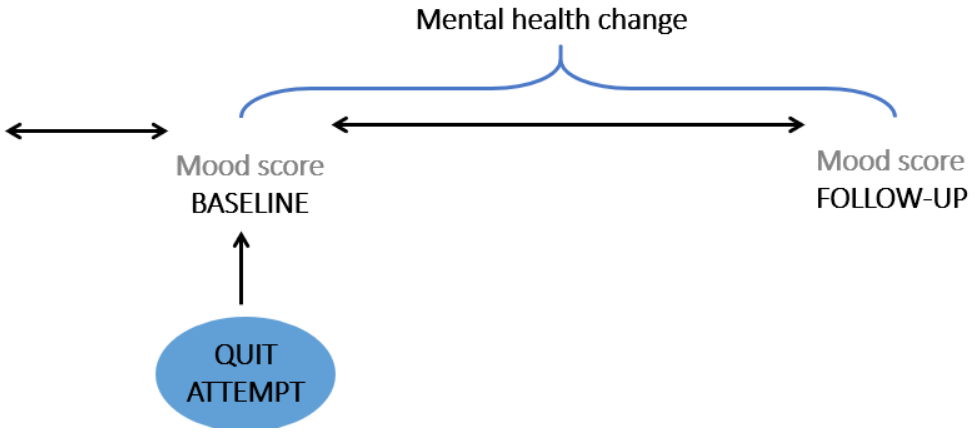
Which came first the chicken or the egg? It could be that people's mental health improved and therefore they quitted smoking.

They argued against this because they felt they had strong evidence

Different study designs included = different ability to infer causality

- Observational cohorts
- Randomised experimental
- Secondary analyses of RCTs

Reverse causality



- Reverse causality is the chicken and egg situation.
- Why do they think they have strong evidence for a direct causal relationship? The reason is because over half of the studies included in the review were secondary analyses of RCT's.
- In these trials, everyone attempted to quit at around baseline
- If improved mental health improved which prompted a quit attempt- then they wouldn't have observed the mental health change
- They argued that this was strong evidence against the potential reverse causality

They also compared the effect estimates between the different types of studies.

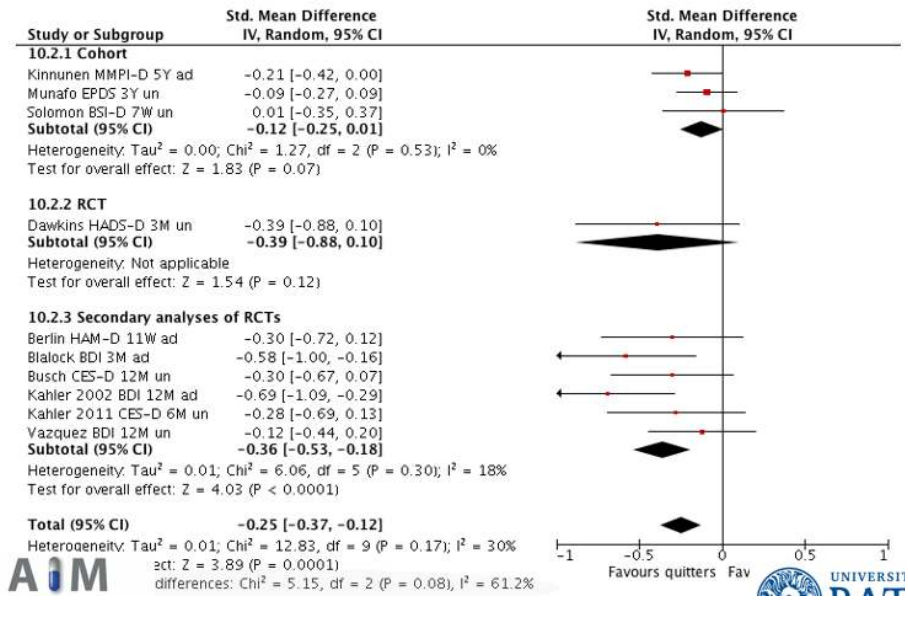
The cohort studies were reverse causality is much more likely

The RCT's were people were actually randomised to quit or continue smoking

Secondary analysis of RCT's where reverse causality is much less likely to happen

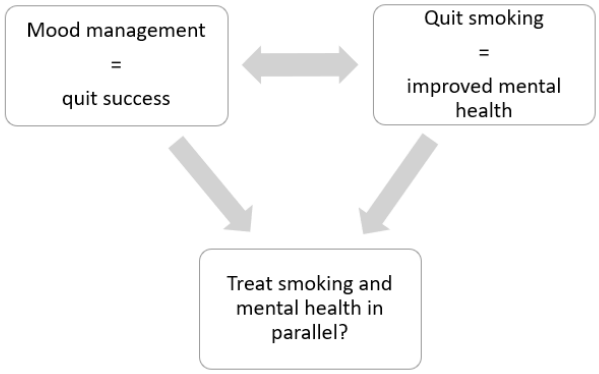
They found no evidence of subgroup differences, because when you compare the pooled estimates between these different types of analysis, they didn't find evidence of a difference between them - so the effect estimates were statistically very similar.

Study design comparison - depression


Std. Mean Difference
Study or Subgroup IV, Random, 95% CI
Std. Mean Difference
IV, Random, 95% CI
10.2.1 Cohort
Kinnunen MMPI-D 5Y ad -0.21 [-0.42, 0.00]
Munafo EPDS 3Y un -0.09 [-0.27, 0.09]
Solomon BSI-D 7W un 0.01 [-0.35, 0.37]
Subtotal (95% CI) -0.12 [-0.25, 0.01]
Heterogeneity: Tau² = 0.00; Chi² = 1.27, df = 2 (P = 0.53); I² = 0%
Test for overall effect: Z = 1.83 (P = 0.07)
10.2.2 RCT
Dawkins HADS-D 3M un -0.39 [-0.88, 0.10]
Subtotal (95% CI) -0.39 [-0.88, 0.10]
Heterogeneity: Not applicable
Test for overall effect: Z = 1.54 (P = 0.12)
10.2.3 Secondary analyses of RCTs
Berlin HAM-D 11W ad -0.30 [-0.72, 0.12]
Blalock BDI 3M ad -0.58 [-1.00, -0.16]
Busch CES-D 12M un -0.30 [-0.67, 0.07]
Kahler 2002 BDI 12M ad -0.69 [-1.09, -0.29]
Kahler 2011 CES-D 6M un -0.28 [-0.69, 0.13]
Vazquez BDI 12M un -0.12 [-0.44, 0.20]
Subtotal (95% CI) -0.36 [-0.53, -0.18]
Heterogeneity: Tau² = 0.01; Chi² = 6.06, df = 5 (P = 0.30); I² = 18%
Test for overall effect: Z = 4.03 (P < 0.0001)
Total (95% CI) -0.25 [-0.37, -0.12]
Heterogeneity: Tau² = 0.01; Chi² = 12.83, df = 9 (P = 0.17); I² = 30%
ect: Z = 3.89 (P = 0.0001)
differences: Chi² = 5.15, df = 2 (P = 0.08), I² = 61.2%
-1
-0.5
0
0.5
1
Favours quitters
Fav

- They then translated there findings into something more clinically useful. So they compared the effect of stopping smoking versus continuing smoking, to the effect of anti-depressant treatment versus placebo in RCT's.
- They found that the association between stopping smoking and improved mental health were similar to the association between taking an antidepressant and improved mental health.

Double-whammy effect?



- If smoking has such an antidepressant effect on peoples mental health effect, why isn't smoking cessation being delivered as a treatment for mental health? Why isn't it part of standard mental health care and treatment?
- They know that when people who are trying to quit smoking are offered mood management along side their stopping support they are more likely to quit smoking
- And we know what quitting smoking improved mental health
- And it all has to do with this myth that stopping smoking will make peoples mental health worse and that people wont be able to cope
- Gemma's research goes against this and shows its not right, and helps combat a lot of thoughts around this in clinical settings for practitioners and patients.

Pilot and Feasibility Studies

Home About Articles Submission Guidelines

Study Protocol | Open Access | Open Peer Review | Published: 22 January 2019

IntEgrating Smoking Cessation treatment As part of usual Psychological care for dEpression and anxiety (ESCAPE): protocol for a randomised and controlled, multicentre, acceptability, feasibility and implementation trial

Gemma Taylor ✉, Paul Aveyard, Kate Bartlem, Alison Shaw, Jeremy Player, Chris Metcalfe, David Kessler & Marcus Munafò

Pilot and Feasibility Studies **5**, Article number: 16 (2019) | Cite this article

959 Accesses | **59** Altmetric | Metrics

- Gemma got funding from Cancer research UK to try to integrate smoking cessation treatment into routine clinical care for people with depression and anxiety. In the UK people with depression and anxiety typically get outpatient treatment in a service called IAPT (improving access to psychological therapy).

- They tried to get therapists in IAPT to deliver smoking cessation treatment along side therapy for depression and anxiety

Pilot and feasibility randomised controlled trial (RCT) VS full-sized RCT

Pilot, feasibility and acceptability RCTs	Full-sized RCT
Can we run the trial in terms of trial procedures?	Is the intervention effective in treating x outcome?
Can we deliver the intervention?	Does the intervention cause harm?
Can we recruit?	Is the intervention better than treatment as usual
Do participants and clinicians accept the trial procedures?	Is the intervention cost-effective?
Do participants and clinicians accept the intervention?	Does the intervention have any side effects?

- They did a pilot study before they did the full trial.
- In the pilot they are testing to see if they can run the trial in terms of its procedures, is it possible to deliver the intervention? Can they recruit people? Do those involved in the trial accept the trial procedures and the intervention?
- They do this version first because the pilot cost about half a million – the full size trial cost about 30 million. If you are able to show it works and is feasible, you are more likely to get money for the full one.
- In the pilot trial they are not interested in effectiveness of the intervention on the outcome

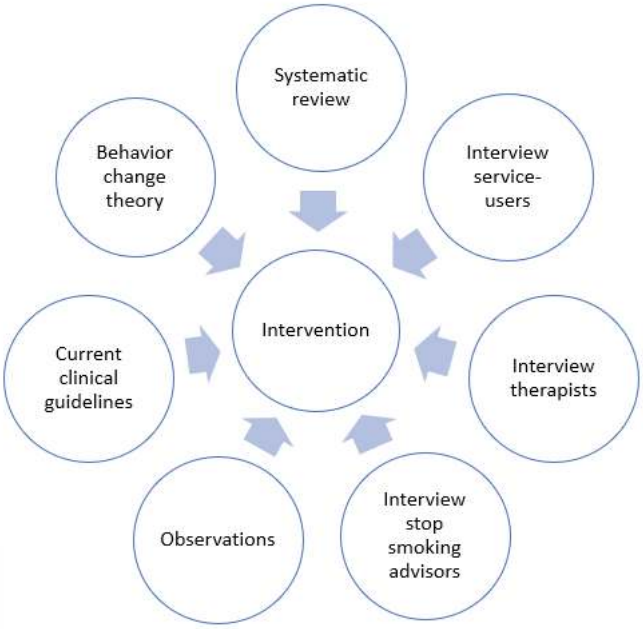
The ESCAPE Trial – study aims

Aim 1: **Design** a smoking cessation intervention for delivery across UK national mental health services (IAPT)

Aim 2: **Test** the intervention in a multi-centre randomised study, in terms of its:

- Feasibility
- Service user and clinician acceptability
- Implementation quality

Intervention co-design



- For the co-design intervention they took information from lost of different sources
- They did a systematic review to see if there was effect modifiers – they looked at behavioural interventions for smoking cessation and conducted a series of meta-regressions to see if there were behavioural components of the intervention which predicted the effect more than others , so were some intervention components more effective than others in people with depression. They didn't find much evidence, but they did find that interventions done by medics were less effective compared to psychologists.
- They interviewed service users of IAPT to see what they felt would be useful in terms of an intervention
- They interview therapists to see what they thought would work best
- They interviewed stop smoking advisors who are the current standard treatment for smoking cessation
- They did observations of stop smoking treatment in current settings and observations in IAPT to see how the sessios were delivered
- They also looked at current clinical guidelines for smoking cessations
- They went back to behaviour change theory – what they know works in terms of behehavioural interventions for smoking cessation.
- All of these thing fed into their intervention

Intervention structure

Parallel treatment of smoking and mental health, in IAPT. So patients get their CBT AND there smoking cessation treatment in the same session from the same practitioner

Delivered by IAPT therapists **during usual** therapy sessions during individual sessions. It is delivered over the telephone, it was delivered face to face but Covid-19 has changed it

IAPT service users with depression and/or anxiety, who smoke daily. If they are **elligble for IAPT**, they are eligible for the trial. This is called a PRAGMATIC inclusion criteria – they want to include people which generally represent IAPT users, not just people e.g. who don't have co-morbidities or don't use substances and things.

5-15 minutes per therapy session over 6 sessions.

Smoking cessation medication + behavioural support. They get the choice of smoking medication e.g. nicotine patches, nicotine gum, or a pill, or e cigarettes and behavioural support.

The control group is TAU (treatment as usual) + at the end of their treatment they get referred to their local smoking cessation services (this is for ethical reasons because is someone enrols in the trial they want to try and quit smoking, ethically they should try and help them, even if they don't get randomised to the treatment.

ANIMATION

- They made an animation of using a cognitive behavioural approach to help people with depression and anxiety stop smoking.
- They actually show that video to the clinicians and use it in their training
- They also have a version for patients to watch before starting so they can see help them understand the cycles between there mental health and smoking and how they can misattribute their feelings of tobacco withdrawal and how tobacco relieves those symptoms for relieving their overall mental health issues
- Integrating smoking cessation treatment into usual care for depression and anxiety: Using a Cognitive Behavioural approach to help people stop smoking

- 1 in every 2 smokers will die from their smoking addiction unless they stop
- It is the best thing to tell patients to stop smoking but it is challenging to address concerns about how they are going to cope without cigarettes when they are copying with cigarettes and mental health difficulties and life stress
- People with mental health difficulties are more likely to smoke , and factors such as stress, low mood and anxiety can lead to smoking
- Smoking tobacco might actually cause mental health problems and stopping smoking can improve mental health
- There is no evidence that stopping smoking will make mental health problems worse – this knowledge could empower and motivate patients to stop smoking
- Research shows that smokers can double their chances of stopping smoking when they have behavioural support and smoking cessation medication
- When someone starts smoking for the first time there are some rewarding effects on mood and cognition. However, as they become use to the effects of tobacco these go away and they are smoking only to alleviate withdrawal symptoms like low mood, irritability, low concentration and anxiety.

- If someone smokes on a regular basis then they will feel these withdrawal symptoms much of the time, with short periods of relief only after they smoke and shortly after this is called the TOBACCO WITHDRAWL CYCLE

- When caught in the cycle people can mistakenly believe that smoking can relieve symptoms of anxiety or low mood but this isn't the case. These symptoms are caused by tobacco withdrawal.

- Stopping smoking will eventually alleviate symptoms all together. Improvements in these symptoms tend to start 6 weeks after stopping smoking as the cycle is broken

- It is useful to explain this cycle to people who smoke and have mental health problems and help them understand how there smoking and mental health are linked.

- Smoking can become a maintenance factor in there mental health difficulties

- 20 minutes after smoking a cigarette levels of nicotine and other chemicals start to reduce which leads to physical and psychological withdrawal which lead to symptoms such as poor concentration, insomnia, feelings ot tension, restlessness, low mood and anxiety.

- Using a CBT model is a helpful way of supporting patients to see how their thoughts, emotions , behaviour and physical sensations are interlinked in their tobacco use and mental health.

- Most smoking cessions for people with depression or anxiety, behavioural activation or activity planning as well as motivational interviewing might be a useful way for your patient to make a quit attempt

- In the case of anxiety disorders and depression , the 5 areas fo the model can help us understand that feelings of anxiety and depression can be a trigger to start smoking, this might be an effect of calm themselves down, reduce anxiety make themselves feel or give them themselves a break.

- As smoking provides short term relief from withdrawal and as a patient thinks they feel better after a cigarette, this reinforces their smoking behaviour. However as little as 20 minutes later this cyle will happen again.

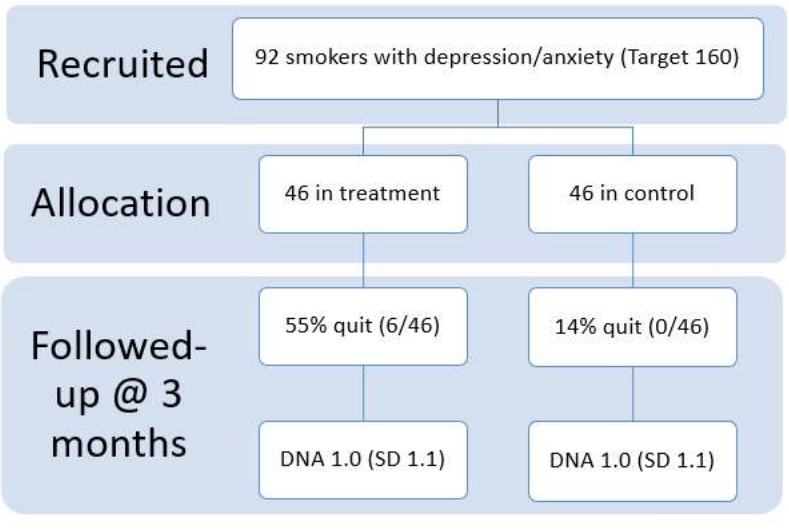
- These models show how these areas interact with one another to maintain a unhealthy coping behaviour or pattern of low mood

Trial outcomes

Trial outcomes at 3-months:

- Retention/Drop-out ★
- Quit rates
- Depression scores
- Side effects
- Intervention acceptability- do clients like the intervention?
- Intervention implementation ★

Pilot clinical trial – results to date



Taylor, G et al (2018). intEgrating Smoking Cessation treatment As part of usual Psychological care for dEpression and anxiety (ESCAPE): protocol for a randomised and controlled, multicentre, acceptability, feasibility and implementation trial. (Under review).

- DNA= do not attends (the client stops attending the appointments)
- This is important because if they are offering a treatment and this rate is higher than the control, this is really bad – they don't see any evidence of this
- The quit rates are slightly higher in the treatment group – they take saliva samples from people and check it for nicotine metabolites
- The trial is ongoing so the data is currently changing

Tom Lancaster
(reward, psychiatry, genomics)

Conclusions

- Observational epidemiology is a useful tool to identify potential intervention targets. So she identified that smoking cessation is linked to improvements in mental health and that's led to asking whether smoking cessation is a successful intervention for mental health

- Interventions take time to develop and require an accumulation of evidence to develop. Gemma started the systemic review in 2012 and it wasn't published till 2014. She wrote for funding in 2014, didn't get it until 2017, the trial is still ongoing and it is 2021 and they still have to do the whole thing.

- Interventions are tested in a pilot/feasibility RCT before going on to a full trial.

Factors effecting smoking:

- Age – If people smoke earlier in their life they will find it harder to quit later on. They've smoked more so they become more dependent and the biological pathways and reward systems in the brain are a lot more engrained.

- There is a genetic overlap between addiction and mental health. Some of the genetic pathways that are implicated in tobacco addiction are also implicated in becoming depressed or having another mental illness

- Environmental factors are huge. People who experience more adversity in their life /who come from less privilege backgrounds and lower socioencomic status on average tend to smoke more. These disparities are getting wider over time.

- Psychological factors- people who take part in more risk related acvitvies e.g. unprotected sex and drug taking are more likely to smoke

The health psychology models that Gemma uses are:

- PRIME- by Robert West , specific to addiction
- The combi-model otherwise known as the behaviour change wheel– by Suzan Lihi , this is specific to mutli-component interventions

WEEK 9 NOTES LECTURE 27/11/20 – Friday

Clinical Psychology - Dr Tom Lancaster

- Two PDF papers left on moodle to make notes on: Preliminary evidence for genetic overlap between body mass index and striatal reward response T. M. Lancaster, I. Ihssen, L. M. Brindley, and D. E. Linden https://moodle.bath.ac.uk/pluginfile.php/1676299/mod_resource/content/1/s41398-017-0068-4.pdf

- Polygenic Risk of Psychosis and Ventral Striatal Activation During Reward Processing in Healthy Adolescents Thomas M. Lancaster, PhD; David E. Linden, MD, PhD; Katherine E. Tansey, PhD; Tobias Banaschewski, MD, PhD
https://moodle.bath.ac.uk/pluginfile.php/1676300/mod_resource/content/2/yoi160037-2.pdf

- Can you summarize their main area?

- Do you understand their main methods?

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

Child and Adult Mental Health

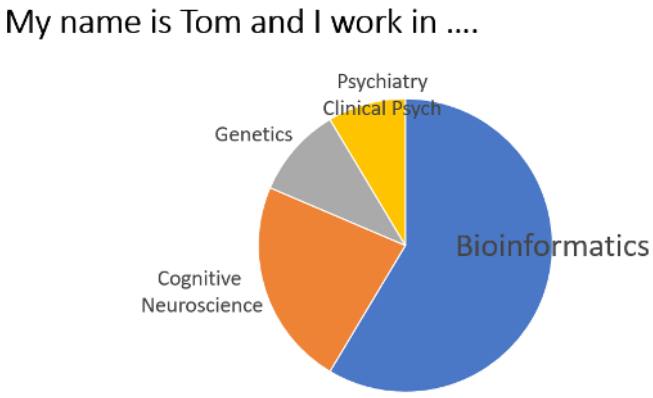
- He has an extremely **reductionist approach** to clinical psychology

- They ways he measures phenomena are inherently incomplete and only part of the picture

- A lot of what Tom does is putting data into an environment where you can make **inferences**. This can incorporate things like cognitive neuroscience and psychological profiling approaches, but largely its about **organising 'big data'** in a way that can help make inferences and assumptions

What Tom is:

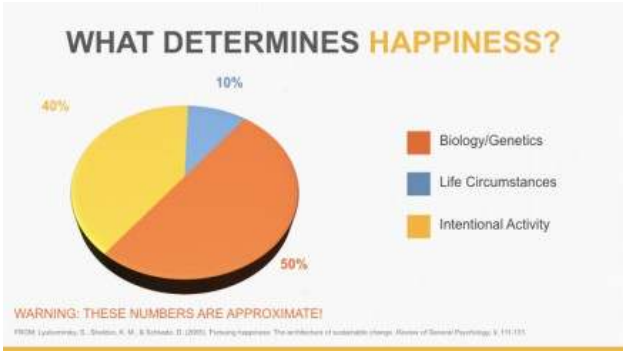
- ~~Psychologist / Cognitive neuroscientist?~~
- ~~Clinical psychologist ? -~~ He works in clinical psychology but he IS NOT A CLINCAL PSYCHOLOGIST, he has never done any work with patients
- Neuroimaging researcher?
- Behavioral geneticist? Field where you look at individual variants in the genome to see how that manifests a behaviour
- Psychological researcher in individual differences?
- Bio-psychologist?
- **Bioinformatician?** This is one of the main things he does. It is the study of biology in big data
- Jack of all trades, master of none? ✓ He's never really specifailsed in one area



What made me a cynical reductionist?

- When you talk about how happy you are, it is actually **largely driven by your genetics and only proportionally by your life circumstances**. If you were born with the right set of genes it doesn't matter what circumstances you'd be put into, you would always be relatively happy. And vise versa – if you are born with genes that give you an inability to experience pleasure and reward then you wouldn't be happy.

- It's a very depressing outlook on life, but it is well grounded in literature. A lot of what we do and who we are is due to the genetic variation we inherited from our parents.



BIOLOGICAL PSYCHIATRY

- He is talking about biological psychiatry rather than clinical psychology
- Behavior is heritable* (it doesn't explain everything but it is explains A LOT!)
- Temperament, personality, intelligence all explain > 10% of variance
- Heritability accounts for about 30-50% of behaviour at the moment
- **Mental illness can be explained by genetic alterations** (e.g. CNVs- copy number variation)
- There are some disorders which are entirely genetically caused. Katy Price son has a disorder called 15QP 11 , he has a 15Q deletion which is called a copy number variation. It is entirely driven by a big block of the genome being removed. This is a direct cause and effect between genetic and a mental illness. It is relatively rare these kind of deletions, they occur in about 1 in a thousand, so 0.01% of the population. They have a really significant risk impact on mental functioning

Biology based therapies are effective** in treating mental health disorders

- They don't work for everyone, but it does for a lot of people
- There's 80 people in this lecture so 10/12 of us our on medication for depression/anxiety. But for all the people on them they will only work for 4/5 of us.
- Medication is routinely used to mental disorders
    - Drugs: Anti-depressants, anxiolytics, anti-psychotics, mood-stabilizers
    - Invasive methods: Deep brain stimulation, surgery (cutting various fibers of the brain or remove parts of the brain), ECT (electroconvulsive therapy – controversial barbaric way of treating mental illness)
- He is based in biologically psychiatry, but as he does it he knows that it doesn't explain everything
- This is a good one to do the essay on because there are such big critiques available
- In all of this biology, you forget the humanistic element and that it doesn't explain everything

A small, but well-established piece of the pie

- Genetics are (comparably) easier to measure than our environment, WE CAN EMPRICALLY MEASURE IT
- A lot of the qualitative measures take an incredible amount of detail to account for the individual. One person would never fit on a computer. But Tom can have thousands of peoples individual genetic coding on his computer. Genetic outperforms the amount of variance explained compared to how easy it is to collect data
- Our genetics remain static* throughout the lifespan (epigenomics where the expression of genes can be effected by experience e.g. stress, trauma, alcoholism). But genetics don't change so it is a good place to study. In comparison to qualitative peoples mood, peoples life experiences change every single day as well as across the lifetime.
- Genetics tell us about biological process that shape behavior. Genetics code for differences in protein and expression of different genes and these leads to a manifestation of different biological pathways that ultimately lead to differences in behaviour. Tiny little variations filter up through different systems to behaviours and then to symptoms. The tiny variations have accumulative impact
- Provide plausible mechanistic explanations for mental health. i.e. this gene is increasing risk via this pathway, once you can say that you are able to hack the biology and manipulate it in a way that will alleviate the symptom in that individual

How do I assess risk for mental health disorders using genetic approaches?

This is one of the techniques that he uses a lot and it does explain a considerable proportion

Genetic studies in psychology / psychiatry

It's done across a number of traits and characteristics that relate to things:

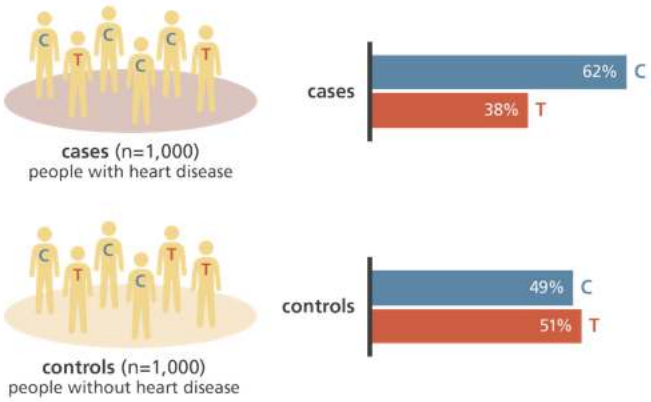
- Personality (Neuroticism, Extraversion)
- Temperament (Subjective well-being)
- Intelligence (Educational attainment, fluid / crystalized IQ)
- Psychiatric disorders (Depression, bipolar disorder, schizophrenia)

How do I assess risk for mental health disorders using genetic approaches?

Essentially you measure this by taking a large number of people and you see which version of an allele they have at all of the genetic points.

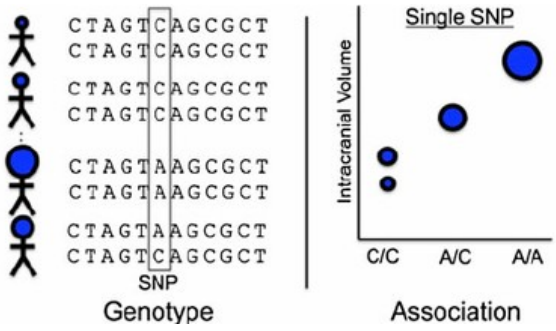
You can have it with a group and control or things on a continuous spectrum.

In the example you can see the cases with heart disease have more of the C allele than they do for the T allele, while the controls are relatively similar. This would suggest that the C allele is over expressed in the case group and is a risk gene.

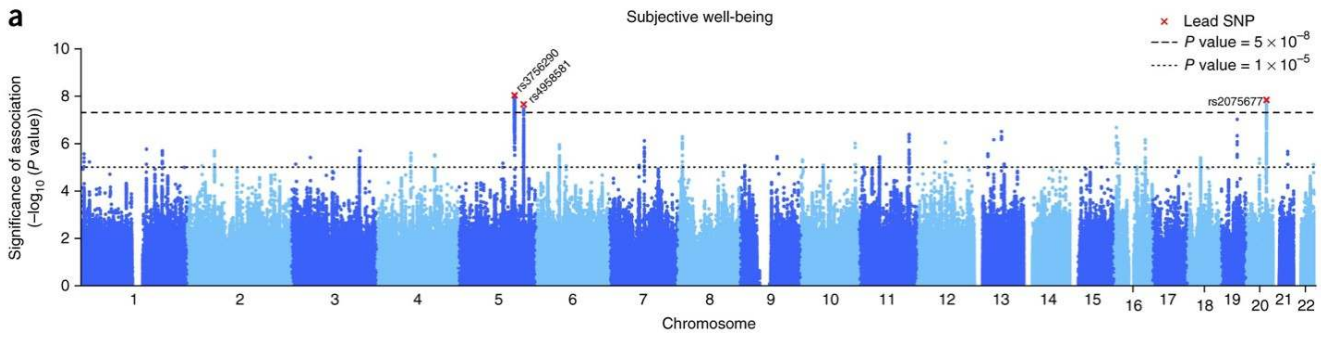


Genome-wide association studies

- Genome-wide association studies started in about 2008
- You take a trait (e.g. are you satisfied with life) and you go through all of the variations in the human genome – there is about 10 million- and you see what those individual variations relate to in the genetics
- SNP is the name for the individual variation (singular nucleus polytimorphism). There are about 10 million of them. It is just a point in the genome where you could have variation. Every single phenotypic trait has a SNP e.g. height, wight, eye color
- E.g. if you have two copies of the C/C allele you have really low subjective well-being
- This is called a Manhaton plot or GWAS because its meant to look like the New York Skyline

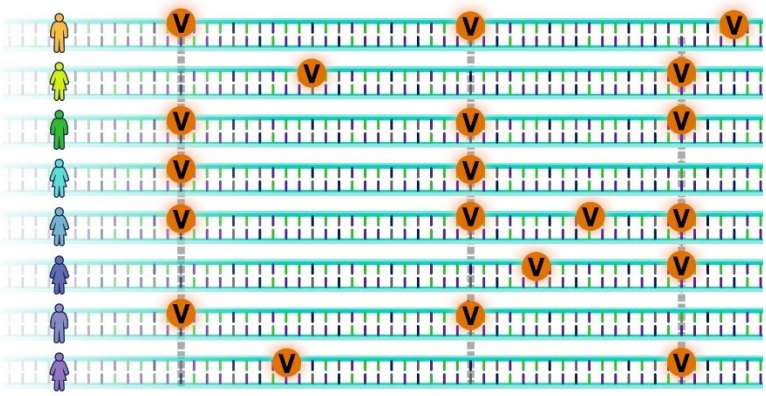


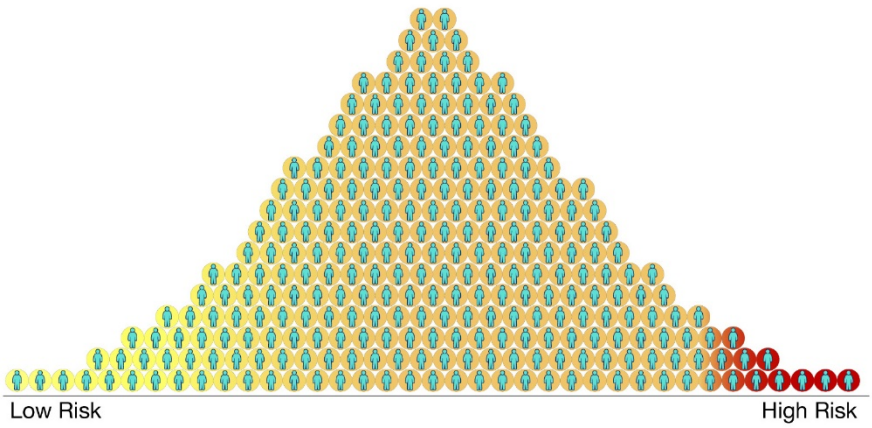
- Essentially this is a graph of the likelihood (the y-axis is the P value) of subjective wellbeing. The x-axis is the number of chromosomes in the human body. Each dot is a SNP. The ggenes with a red dot on them are the ones which have 'corrected for multiple comparisons'



You can also do Polygenic scoring

- This is where the count the number of subjective alleles that a person has.
- The V's on the graphs is where a person has a genetic variation that will up or down regulate their propensity to have higher or lower wellbeing.
- Once you do that, you can create a distribution – this one is called a polygenic scoring. It has becoming increasingly important to biological psychiatry and clinical psychology work because it does explain a proportion of the variance. You can take peoples genome and see who has the highest genetic propensity for a disorder
- This has big ethical implications for being able to score people and see their likelihood of getting things. E.g. insurance companies could get hold of this to discriminate. There is talk about putting people into different classes based on how they are doing compared to how there polygenic score says they should be doing



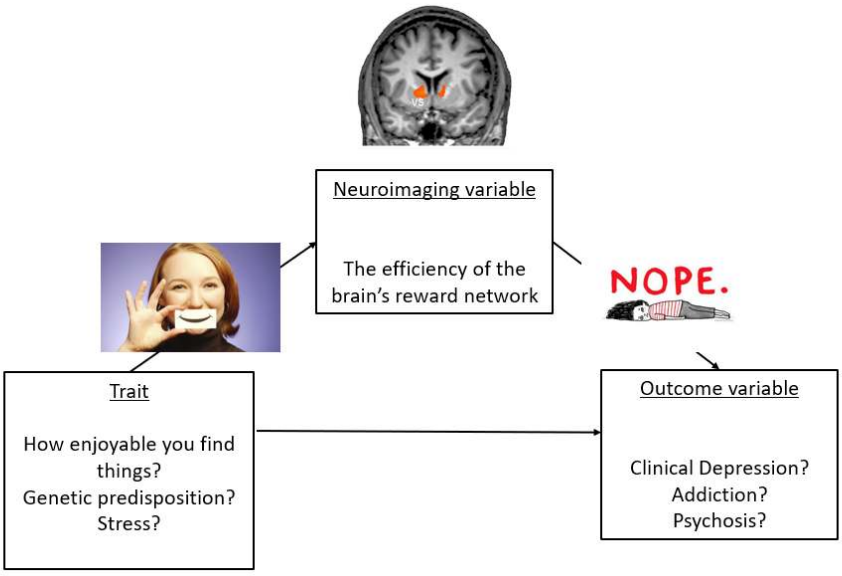


Reward processing as an indicator of mental health

- Reward processing is the brain system which consolidates and helps to evaluate how rewarding something is.
- Tom thinks this area of research is incredibly relevant in clinical psychology and he thinks its going to be used more in clinical practice to understanding diseases and help diagnose and treat.

Contents: Reward processing

- Definitions
- Anatomy
- In psychopathology
- Heritability and susceptibility
- Treatment



- You have a trait (e.g. subjective wellbeing) and there are things which can influence it like stress
- These traits can then lead to a clinical outcome like depression
- But variable (like efficiency of brains reward network) can potentially mediate this
- Part of the way that we see the manifestation of a disorder is in alternations in a system, like the reward system.
- VS stands for ventral striatum – its is also known as the nucleus accumbens– it is a dopamine rich part of the brain which responds fast to rewarding stimuli
- **Don't worry about all the posh words like SNPS – essentially you can create a genetic profile that shows your propensity for a specific trait. It is very good at predicting it in another sample**

Reward processing can influence and shape behaviour in loads of ways:

E.g. claw machine at a funfair

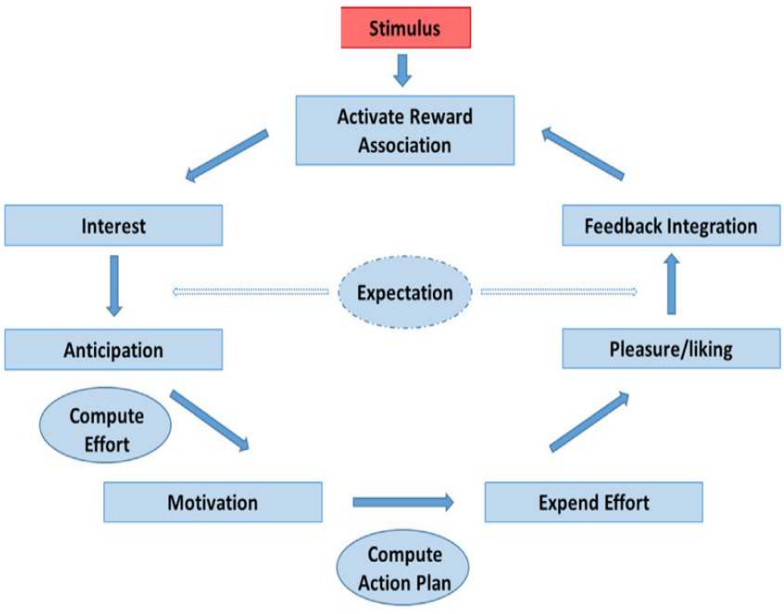
1) **Risk taking** – propensity to start (and keep) playing. What is the likelihood you are going to engage in a risky behaviour (claw machines are risky, you are going to be risking money)

2) **Reward learning** -how outcomes affect future decisions and the optimisation of performance (are you getting more likely to win?) - how you update your knowledge and the way you accumulate information, use the information you have acquired to make better inferences moving forward

3) **Reward anticipation**: That terrifying moment when the machine picks up the teddy and you think your going to get it …. – The point before the reward is one of the most salient drivers and biggest mediators of the reward system. It is a very strong elliciter of feelings of excitement and arousal

4) **Reward (or punishment) receipt**: The reward falls at the collection point (or more likely; it drops the reward). This is getting the reward and how you feel about it

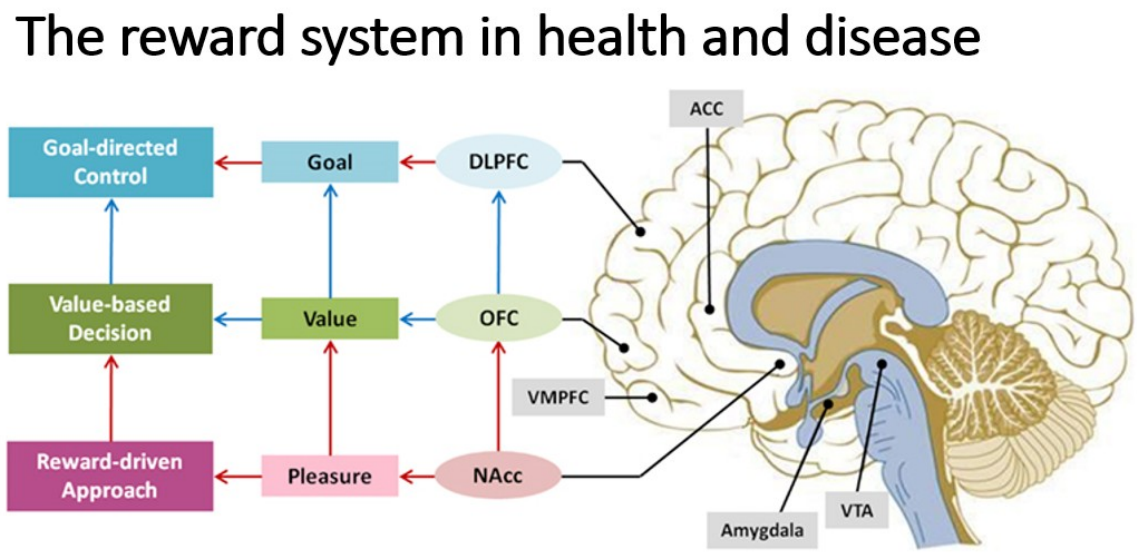
5) **Hedonic tone /anhedonia** – How happy you are with your reward? How much do you care that you have lost money? How you much value you attribute to rewards. If you put all your money into the machine and finally get the toy you want you might be really happy. But if you have lots of this toy at home you might not care that much. People could have every teddy in the world and be unhappy because they attribute very little value to a particular stimulus. But other people who may have less may attribute more value to things. This varies a lot from individual to individual and it is a big part of clinical disorders like depression. E.g. anhedonia is the loss of pleasure and interest in things that you would usually find rewarding.



Modified from Kring and Barch, 2014.

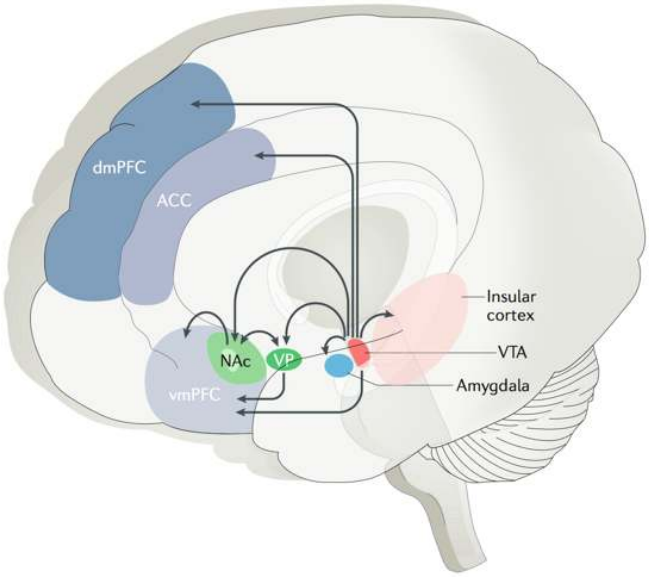
Expectation is a moderating feature – it can be a limiting factor for interest and feedback. All of our experience and ability to value, anticipate and be motivated by experience is modulated by expectation. If you have very high expectations about something then you are going to be disappointed, if you have really low expectations you might be pleasantly surprised. Because the reward system is deeply imbedded in our brain, we will always contrast what we have with what we want. Our expectation is a serious of previous assumptions that we will compare against the current stimulus and decision making process in order to make comparisons. This happens more and more as you get older (see paper - Great Expectations)

What does the reward system look like in the brain?



- Most processes use our whole brain and they operate via a network of brain regions.
- These are some of the hierarchies that our brains typically respond to rewarding stimuli
- The most ancient parts of the process are in the subcortical regions like the NAcc (nucleus accumbens)
- This is highly conserved in mammalian biology, all animals have a nucleus accumbens and a ventral striatum and it all is the grounding feature that drives approach behaviour towards things that we consider rewarding. The VTA- ventral tegmental area – is a highly dopaminergic part of the brain
- They are in part of the brain system called the dopaminergic mesolimbic and mesocortical pathway to other more high functioning brain regions such as the orbitofrontal cortex and the dorsal lateral prefrontal cortex.
- They start to tally up value based decision making – is something worth doing? It might feel good to drive your car 100mph down a motor way, but is it worth it?
- The highest point in this **risk-reward cost accumulation model** is this goal directed behaviour – is this behaviour congruent with what I am trying to accomplish in a longer goal?

The reward system in health and disease



Cognitive Domains

- Behavioural Flexibility
- Reinforcement Learning
- Value-based Decision-Making
- Approach Motivation
- Salience Attribution

Symptom Domains

- Impulsivity / Compulsivity
- Anhedonia
- Avolition
- Risk Taking
- Psychosis

- These areas work by themselves to encode specific parts of this process, but they also talk to each other via temporal coherence and white matter structures in the brain that connect the regions

- As well as the cognitive domains and the discrete biological processes that we can measure, these things also map onto a lot of different symptoms. E.g. impulsivity/compulsivity – if you are hard-wired habitually to conduct behaviours automatically rather than a considered response.

- Anhedonia – inability to experience pleasure and a loss of interest in things
- Avolition – lack of motivation

Commentary

Probing Psychiatric Symptoms with the Monetary Incentive Delay Task

Brian Knutson and Andreas Heinz

- There is big talk in the field, it is an important way in which we can index reward processing. It has alto of traction in looking at how it related to psychiatric symptoms, because understanding how we feel and how rewarded we feel about things can tell us a lot about our mental health.

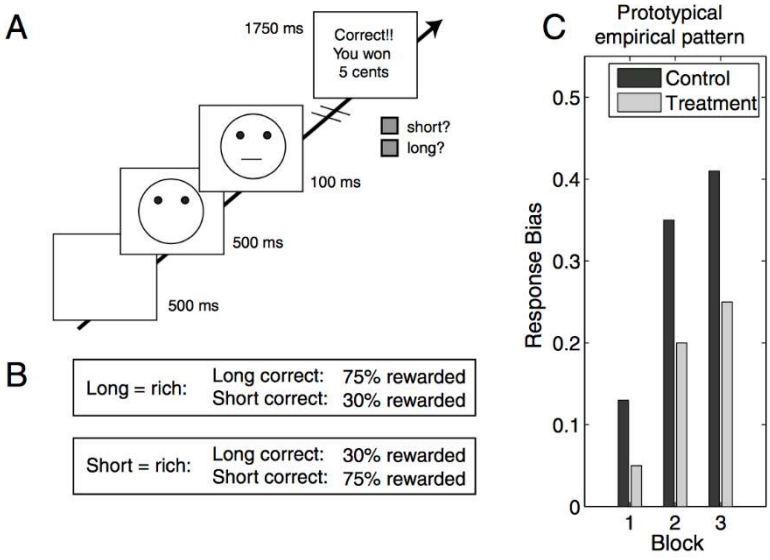
- Monetary Incentive Delay task is a cognitive paradigm which robust elicits a reward response

How do we measure reward the system?

2 principle techniques that we use:

- Psychometric
- Neuroimaging

Psychometric



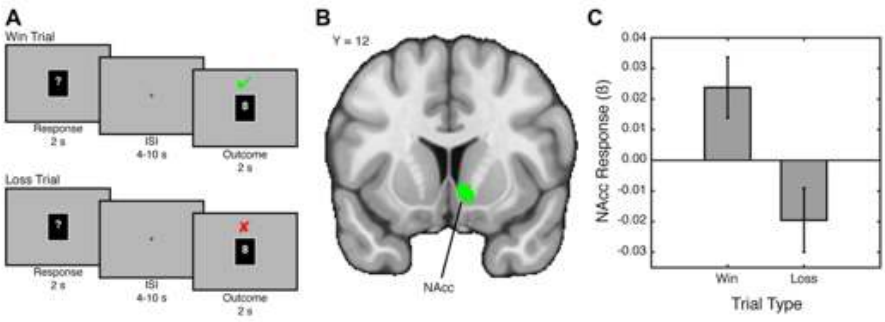
- This is a cognitive neuroscience experiment
- Tom has been using it for a number of years
- Its shown to be a really valid and predictive measure of the reward system.
- They show participants a little cartoon face without a mouth, and then present 2 mouths to choose from: a long mouth or a short mouth. If they get it right they give them some money, but they only do it some of the time and they do it for one of the stimuli more than the others.
- Healthy people show a bias where they start to respond more to the reward that they asymmetrically reinforce. So they cant take a rewarding stimuli and bias people towards that because we are hardwired to be attracted to reward, so when you get rewarded for one stimuli you tend to pick it more.
- But patients with psychiatric disorders (e.g. MDD and bipolar) show a bluntening of this, htye don't show the same effect.

Neuroimaging

- You put someone in a scanner, get them to do an experiment where they are rewarded some of the time and some of the time they loose. At the moment where they are about to get a reward (the anticipatory moment) measure how the brain responds in the scanner. This gives a really robust response in areas such as the ventral striatum.

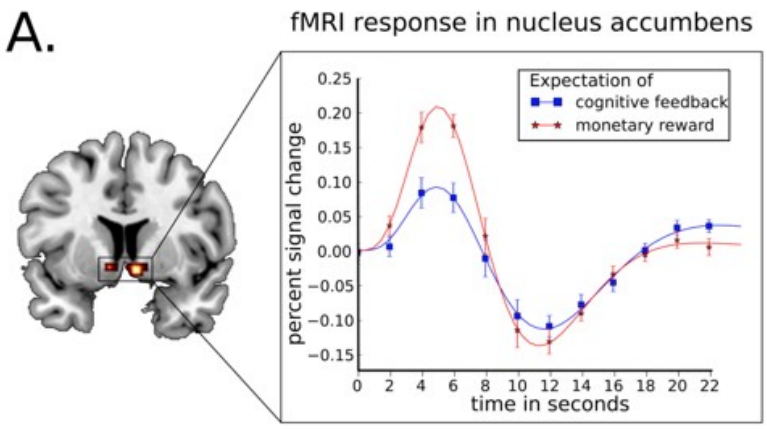
Using fMRI to study reward processing in humans: past, present, and future

Kainan S. Wang,[1] David V. Smith,[2] and Mauricio R. Delgado[1,2]
[1]Center for Molecular and Behavioral Neuroscience, Rutgers University, Newark, New Jersey; and [2]Department of Psychology, Rutgers University, Newark, New Jersey

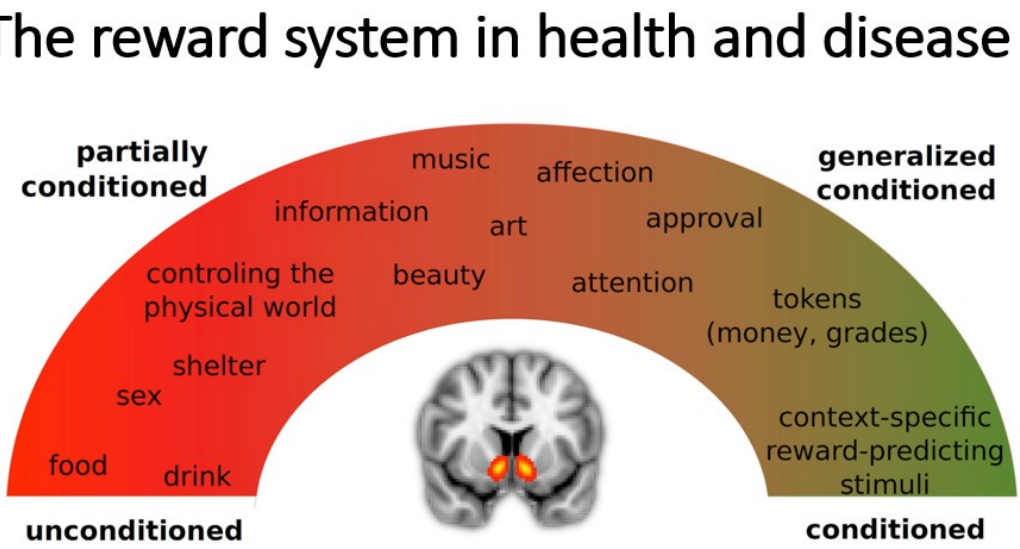


A universal role of the ventral striatum in reward-based learning: Evidence from human studies

Reka Daniel[1,2] and **Stefan Pollmann**[1,3]

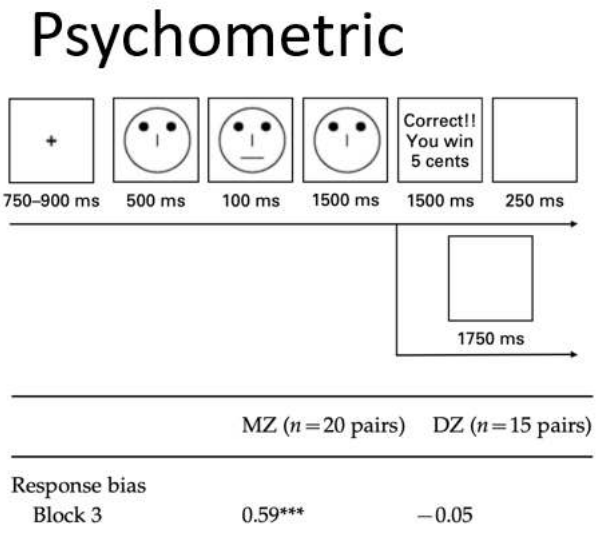


The reward system in health and disease



- The ventral striatum responds to lots of different stimuli. This ranged from unconditioned stimuli which are innate drivers (e.g. food) to very individual things which can be context dependent and conditioned (e.g. ringing of a bell)
- There are fMRI experiments showing that the ventral striatum responds in some way to all of these things.

It is important to note that the **reward system is heritable**.



When you get identical twins and non-identical twins (who have been brought up in the same household so have similar environments) so the only main difference is that MZ twins have 100% of the same genetic information and DZ twins have 50% of the same information.

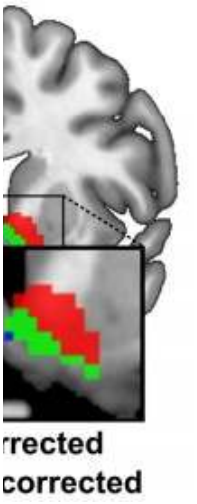
Twins studies support both of these paradigms of measuring reward systems.

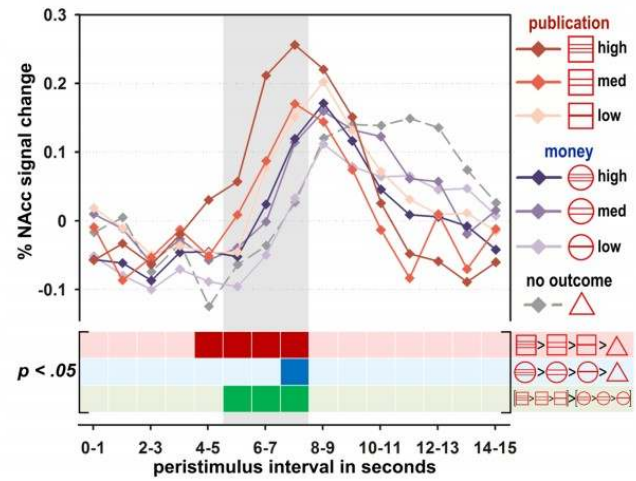
The reward system of researchers?

Journal Impact Factor Shapes Scientists' Reward Signal in the Prospect of Publication

Frieder Michel Paulus*, Lena Rademacher, Theo Alexander Jose Schäfer, Laura Müller-Pinzler, Sören Krach*

Social Neuroscience Lab, Department of Psychiatry and Psychotherapy, University of Lübeck, Lübeck, Germany



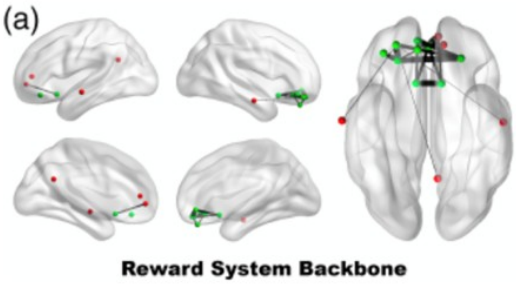


- This is an interesting study. Researchers are highly rewarded by high impact publications. This experiment changed a high impact factor paper to have the participants name as the leading author. Scientists responded better to this reward than hundreds of euro's.

Where? In the brain

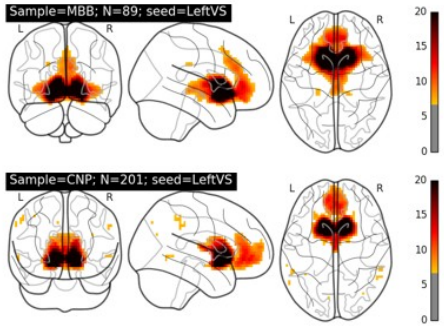
- Its not just one area of the brain responsible, they are all connected
- These papers show how these regions connect
- You can pretty reliably identity the reward network just at rest, it doesn't need to be doing anything and you can see it.

Reward-related regions form a preferentially coupled system at rest



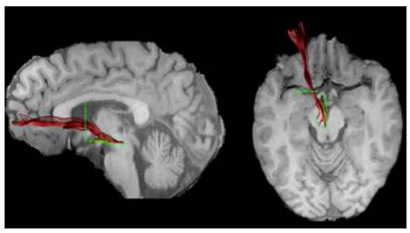
Reward System Backbone

Huckins et al. 2018



Lancaster, unpublished

- **Medial forebrain bundle aka 'the hedonic highway'**



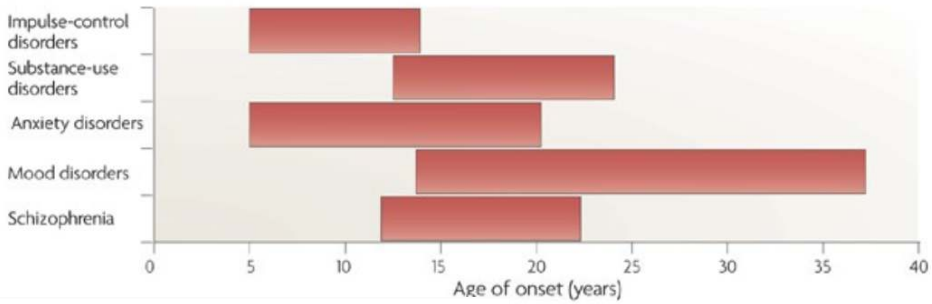
Bracht et al., 2015

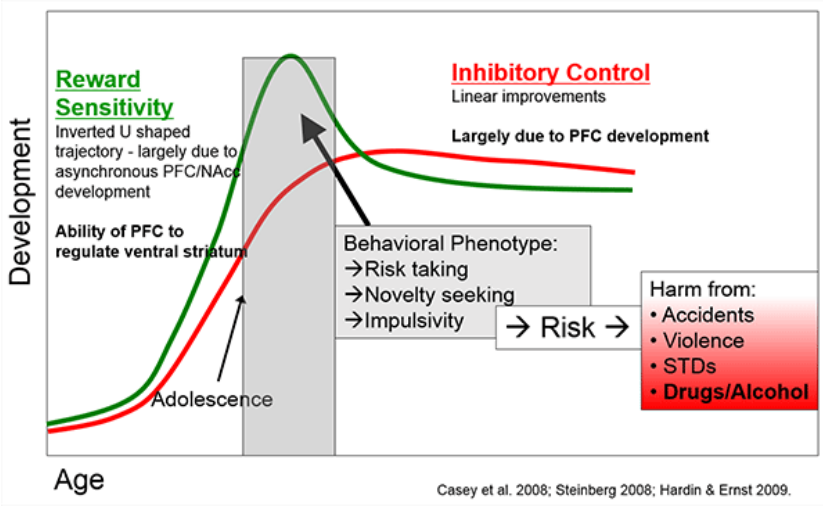
Where In the brain?

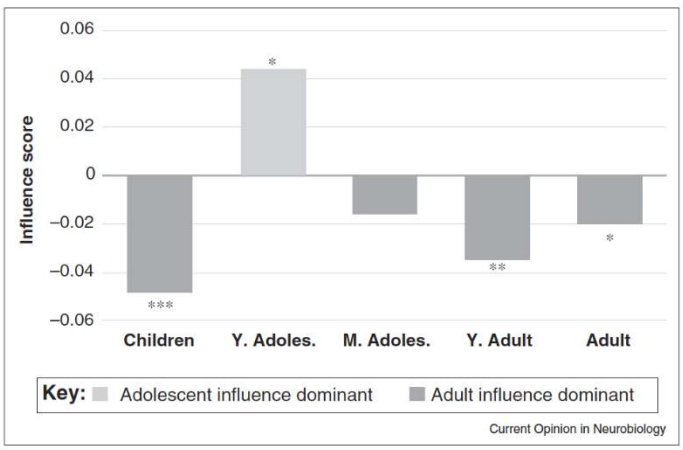
- The mesolimbic dopaminergic pathway propagates from the nucleus accumbens up. This is a white matter tract that propagates that information called the medial forebrain bundle , it is also known as 'the hedonic highway', because it is the part of the brain that information transfers along that encodes the value of information.
- They did a study where the recapitulated that white matter tract and it correlated with hedonic tone – how much interest people show in something.

When? in the lifespan

- The highest reward sensitivity is the same point where a lot of clinical psychological disorders also manifest – at early adolescents between 12-25 ish
- This is the exact same time point you see a spike in the response to reward. There is an increase in risk taking, novelty and impulsivity.
- This is also true for social interactions. Young adolescents are increasingly reward sensitive to social rewards, this drives the need for validation, peer pressure and the propensity to engage in risky behaviour
- You also see the same age spike in reward response to money (Schreuders et al., 2018 – N=693)







JAMA Psychiatry | Original Investigation

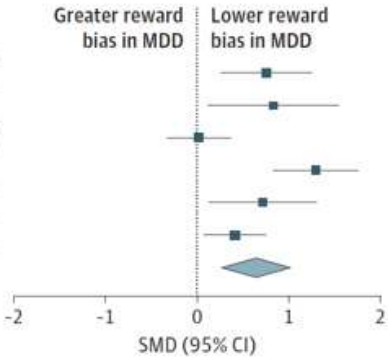
Reward-Processing Behavior in Depressed Participants Relative to Healthy Volunteers

A Systematic Review and Meta-analysis

D. Chamith Halahakoon, MBChB; Karel Kieslich, MUDr, MSc; Ciarán O'Driscoll, BTS, Gdip(Psych), DClinPsy; Akshay Nair, BMBCh, MA(Hons); Glyn Lewis, BA, MBBS, MSc, PhD; Jonathan P. Roiser, MA, PhD

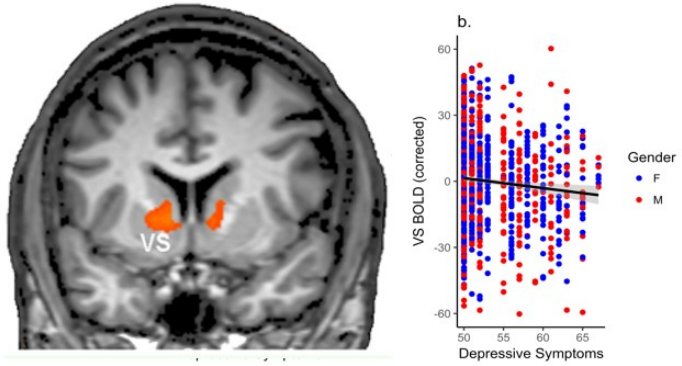
A Reward bias

Source	HC, No.	MDD, No.	SMD (95% CI)
Aylward et al,[58] 2020	47	26	0.76 (0.26 to 1.25)
Henriques and Davidson,[59] 2000	15	18	0.83 (0.12 to 1.55)
Lawlor et al,[60] 2019	36	258	0.02 (-0.33 to 0.37)
Liu et al,[74] 2011	44	43	1.30 (0.84 to 1.76)
Pizzagali et al,[12] 2008	25	23	0.72 (0.13 to 1.30)
Vrieze et al,[62] 2013	63	79	0.41 (0.08 to 0.75)
Subtotal			0.64 (0.27 to 1.02)



- There is a lot of research using both psychometric and fMRI responses to show that patients with mental disorder have altered reward responses and reward sensitivity
- This is a meta-analysis and systematic review that shows the paradigm we use in a lab is consistently associated with reduce/blunted response to reward. People with mental disorder are less likely to be manipulated and bias by rewards that are given to them.

- VS BOLD negatively correlates with depressive symptoms in healthy individuals (n=1200).



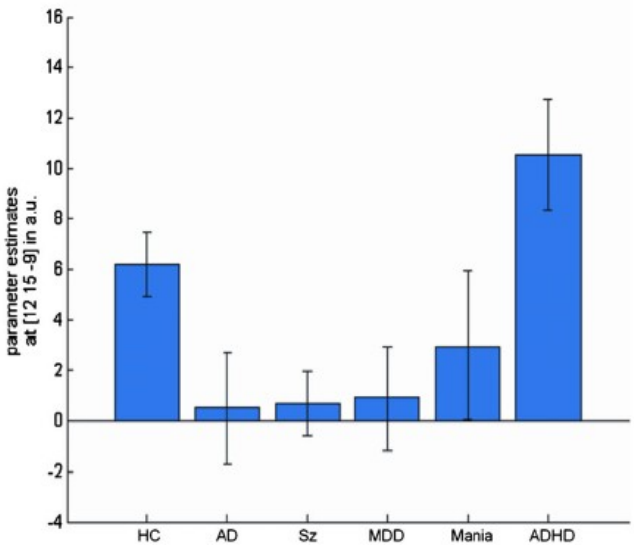
Lancaster & Linden. *OBHM* 2017.

- Tom has done a study where he showed that individuals who have higher levels of depressive symptoms show a reduction in the striatal response.
- It didn't get published because the editor said it was too obvious and had been done too many times

What shapes rewarding experience?

Dimensional psychiatry: reward dysfunction and depressive mood across psychiatric disorders

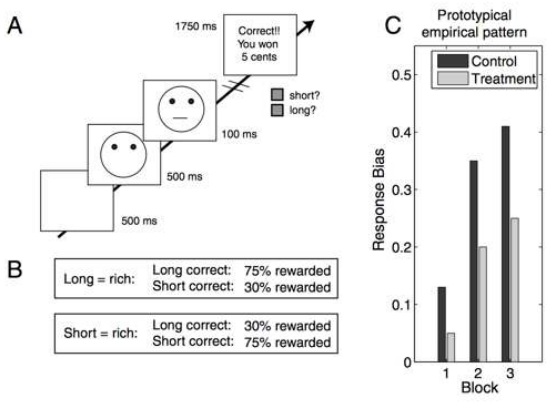
- You can put a large number of psychiatric disorders in the scanner and look at how similar there reward responses are according to their diagnostic status. (Claudia Higgle et al.)
- Compared to heathy controls: autism, schizophrenia, MDD and bipolar all show a reduction in response to reward. Whereas the people with ADHD (who have increased impulsivity and hyperactivity) show an increases response to reward. So it can be pathological at either end



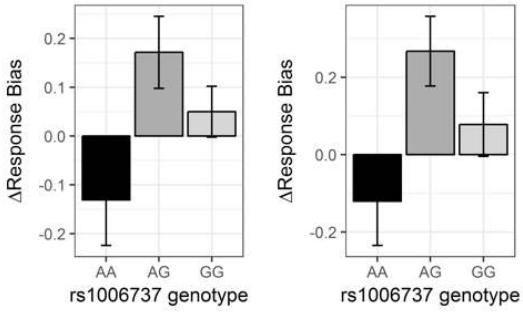
What shapes the reward system?

Genetics, therapies and interventions

- What things can we assume about the reward response in order to help create new therapies?
- Tom did a study where he found one of the risk genes.
- In 2 samples they showed that people who carried the risk allele (black bar) showed a blunted response in reward in the same way that we see in patients with depression (but these people are healthy)

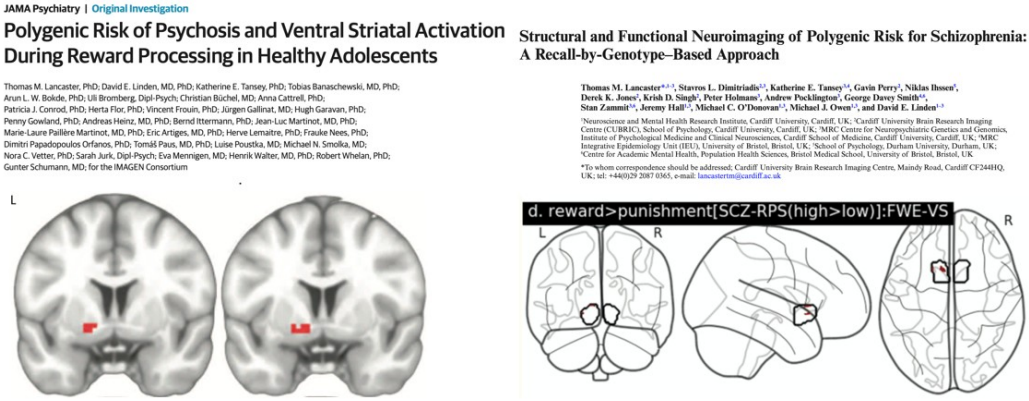


Psychosis risk gene: *CACNA1C*



- Tom also did a study where he created a polygenic risk score based on anorexia and obesity and the measured BMI. He found people with a higher genetic risk factor for anorexia had a lower BMI and people who had a high genetic risk for obesity had a higher BMI.
- They also so the exact same thing when they put the people in a fMRI scanner and showed them food. They showed people yummy food, and people who were more genetically predisposed to anorexia showed a reduction to food rewards, but the people with a genetic risk for obesity showed a higher response to food reward. **So BMI and risk factor were highly linked**

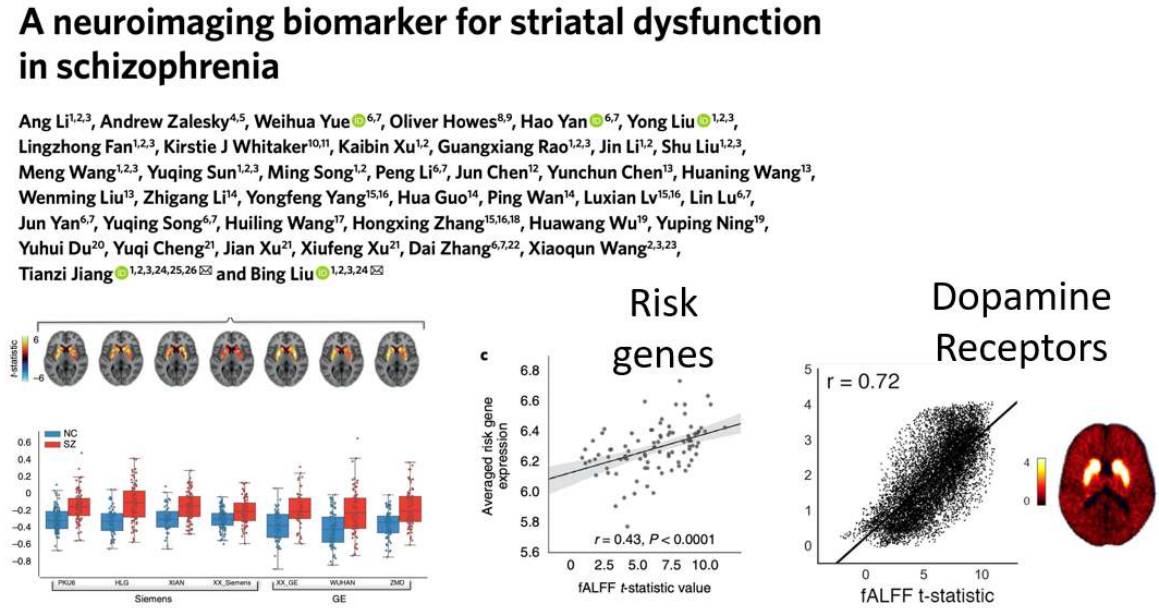
What shapes rewarding experience?


JAMA Psychiatry | Original Investigation
Polygenic Risk of Psychosis and Ventral Striatal Activation During Reward Processing in Healthy Adolescents
Thomas M. Lancaster, PhD; David E. Linden, MD, PhD; Katherine E. Tansey, PhD; Tobias Banaschewski, MD, PhD; Arun L. W. Bokde, PhD; Uli Bromberg, Dipl-Psych; Christian Büchel, MD; Anna Cattrell, PhD; Patricia J. Conrod, PhD; Herta Flor, PhD; Vincent Frouin, PhD; Jürgen Gallinat, MD; Hugh Garavan, PhD; Penny Gowland, PhD; Andreas Heinz, MD, PhD; Bernd Ittermann, PhD; Jean-Luc Martinot, MD, PhD; Marie-Laure Paillère Martinot, MD, PhD; Eric Artiges, MD, PhD; Herve Lemaitre, PhD; Frauke Nees, PhD; Dimitri Papadopoulos Orfanos, PhD; Tomáš Paus, MD, PhD; Luise Poustka, MD; Michael N. Smolka, MD; Nora C. Vetter, PhD; Sarah Jurk, Dipl-Psych; Eva Mennigen, MD; Henrik Walter, MD, PhD; Robert Whelan, PhD; Gunter Schumann, MD; for the IMAGEN Consortium
L
Structural and Functional Neuroimaging of Polygenic Risk for Schizophrenia: A Recall-by-Genotype–Based Approach
Thomas M. Lancaster, Stavros L. Dimitriadis, Katherine E. Tansey, Gavin Perry, Niklas Ihssen, Derek K. Jones, Krish D. Singh, Peter Holmans, Andrew Pocklington, George Davey Smith, Stan Zammit, Jeremy Hall, Michael C. O'Donovan, Michael J. Owen, and David E. Linden
d. reward>punishment[SCZ-RPS(high>low)]:FWE-VS
L
R
R

Age: 14 years old

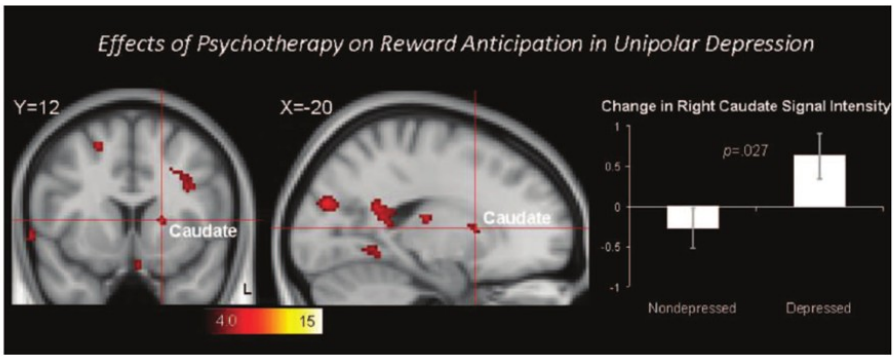
Age: 19 years old

- Tom has also done a couple of studies looking at reward response and psychosis. Reward anticipation in psychosis is really well linked.
- He showed that young individuals who have a genetic risk for psychosis showed an altered reward response and an increase in anticipation. So people who are genetically more likely to get schizophrenia and psychosis show an exaggerated anticipation to reward, they think this has something to do with delusions and psychotic experiences.


A neuroimaging biomarker for striatal dysfunction in schizophrenia
Ang Li, Andrew Zalesky, Weihua Yue, Oliver Howes, Hao Yan, Yong Liu, Lingzhong Fan, Kirstie J Whitaker, Kaibin Xu, Guangxiang Rao, Jin Li, Shu Liu, Meng Wang, Yuqing Sun, Ming Song, Peng Li, Jun Chen, Yunchun Chen, Huaning Wang, Wenming Liu, Zhigang Li, Yongfeng Yang, Hua Guo, Ping Wan, Luxian Lv, Lin Lu, Jun Yan, Yuqing Song, Huiling Wang, Hongxing Zhang, Huawang Wu, Yuping Ning, Yuhui Du, Yuqi Cheng, Jian Xu, Xiufeng Xu, Dai Zhang, Xiaoqun Wang, Tianzi Jiang and Bing Liu
t-statistic
NC
SZ
PKUI
HLG
XIAN
XX_Siemens
XX_GE
WUHAN
ZMD
Siemens
GE
Risk genes
c
Averaged risk gene expression
r = 0.43, P < 0.0001
fALFF t-statistic value
Dopamine Receptors
r = 0.72
fALFF t-statistic

- People are starting to take this forward into clinical prediction.

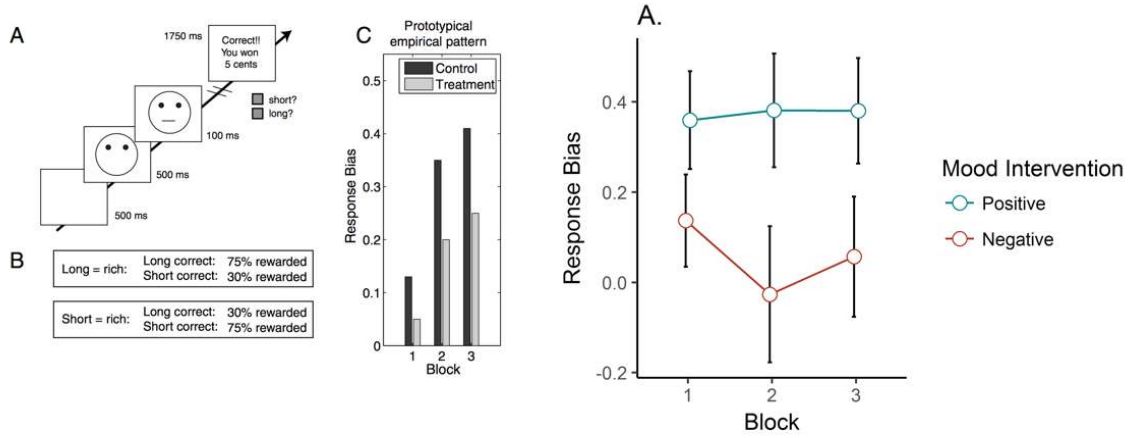
- This research essentially shows (repeatedly across lots of sites) that you can distinguish schizophrenia patients versus controls based on the activity in their striatum.
- This was very strongly related to dopamine receptors, how much dopamine they had in that particular part of the brain and the risk genes that they had.
- This is important because schizophrenia is treated with a drug that dampens dopamine, anti-psychotics are D2 antagonists which mean they reduce dopaminergic tone in the striatum.



Dichter et al (2009)

How do we help people? Can we boost reward?

- If we see reward response is lessened in mental disorder, what can we do to boost reward?
- They did a study last year where they got a bunch of students and gave them a mood intervention and primed them to have a positive affect or negative affect during this psychogenic method.
- They showed that if you give people a positive mood induction, they do better in their reward response. They take away more reward.
- They thought this was good because it was a very simple mood response mood induction paradigm



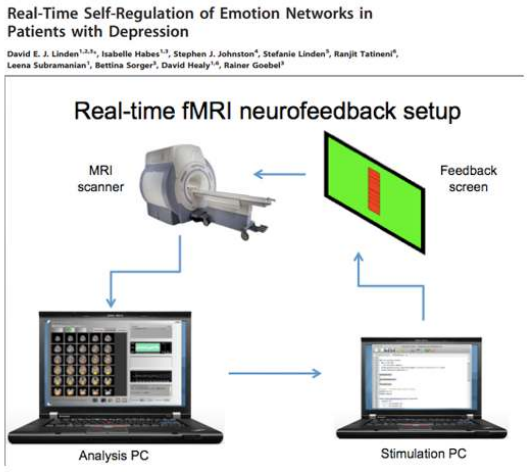
Brown, Davies, Dywer & Lancaster, *In Preparation*

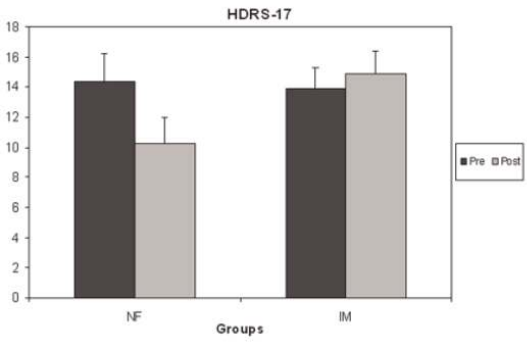
How do we help people? Are therapies working?

- There's also neural correlates showing that just having psychotherapy (in things like CBT) can effect the reward system as well. Just talking to a therapist was enough to elicit a response in how people who are depressed brain' response to reward

How do we help people? Are therapies working?

- They did a study were they got people to up-regulate their own brain activity.
- You can see your brain activity on a screen in front of you and the better you do the more you upregulate that part of their brain.
- You get people to think about driving a part of their brain and they can actually train there themselves to upregulate their brain.
- The research showed a reduction in peoples mental disorder symptoms when they were trained to





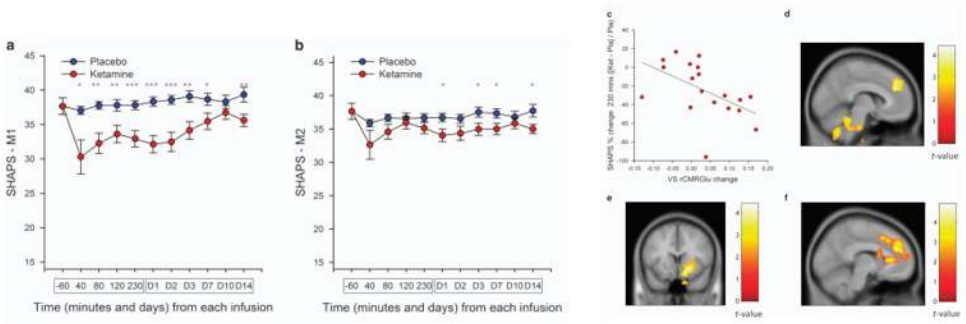
reguate that part of their brain!

How do we help people? Are drugs working?

ORIGINAL ARTICLE

Anti-anhedonic effect of ketamine and its neural correlates in treatment-resistant bipolar depression

N Lally[1,2], AC Nugent[1], DA Luckenbaugh[1], R Ameli[1], JP Roiser[2] and CA Zarate[1]



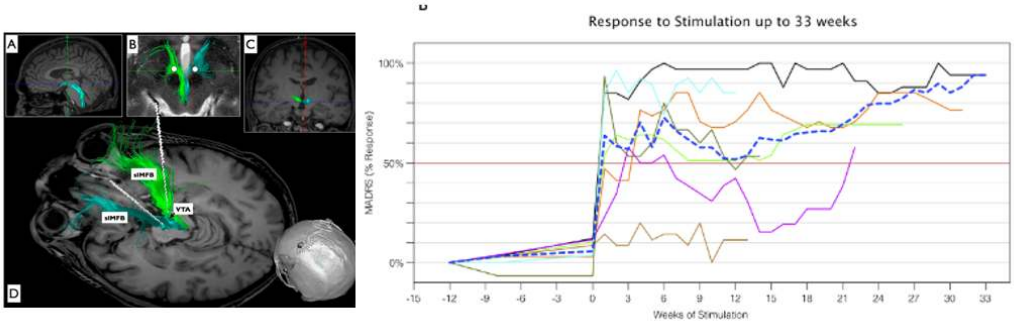
- You can also see how drugs effect reward pathways. Ketamine is shown as a potential treatment for people with major depressive disorder. People with strong levels of suicidal ideation who don't respond to treatment and are the brink of suicide, if you can infuse them with ketamine their suicidal ideation very quickly in a matter of hours subsides. Its not a permanent solution but it can help people not kill themselves. This can be potentially mediated by areas like the ventral striatum

How do we help people? A last resort …

PRIORITY COMMUNICATION

Rapid Effects of Deep Brain Stimulation for Treatment-Resistant Major Depression

Thomas E. Schlaepfer, Bettina H. Bewernick, Sarah Kayser, Burkhard Mädler, and Volker A. Coenen



- What about people who are extremely treatment resistant?
- This is a study were they got people who are incredibly treatment resistant and they gave them deep brain stimulation. So they induced an electric activity in this hyper hedonic highway- from the dopamine rich parts of the brain to the front parts of the brain. When you stimulate these, people got better very quickly.

Conclusions:

- Temperament, mood, personality, cognition, psychiatric predisposition are all heritable*
- Biology is a very strong influencer and shaper of behaviour through genetics
- Genetic predisposition is likely to shape* how we make decisions and experience reward
- Understanding these systems will provide new approaches to diagnose, treat and monitor individuals with reward-system related mental health problems
- Potentially the reward system is an extremely efficient way of gaining a glimpse into the biology of a lot of different disorders and a potential treatments

WEEK 10 NOTES LECTURE 30/11/20 – Monday

Clinical Psychology – Dr Rebecca Davis

- 3 PDF papers left on Moodle to make notes on: SCHOOL-BASED COUNSELLING IN UK SECONDARY SCHOOLS: A REVIEW AND CRITICAL EVALUATION Mick Cooper- https://moodle.bath.ac.uk/pluginfile.php/1678601/mod_resource/content/1/Cooper%20%282013%29%20Review%20%20Evaluation.pdf

- The emotional and behavioural symptom trajectories of children in long-term out-of-home care in an English local authority Rachel M. Hiller , Michelle C. St. Clair - https://moodle.bath.ac.uk/pluginfile.php/1678603/mod_resource/content/1/Hiller%20%20St%20Clair%20%282018%29.pdf

- A longitudinal study of cognitive predictors of (complex) post-traumatic stress in young people in out-of-home care Rachel M. Hiller, Richard Meiser-Stedman, Elizabeth Elliott, Rosie Banting, and Sarah L. Halliganhttps://moodle.bath.ac.uk/pluginfile.php/1678604/mod_resource/content/1/Hiller%20et%20al%20%282020%29.pdf

- Can you summarize their main area? **Child Mental Health, school based therapy and PTSD in children in care**

- Do you understand their main methods? **First study is quantitative, second is mixed methods**

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

Educational Psychologist in Practice and a Research Associate

Overview

- My Background
- Educational Psychology – what is it (with a focus on role in child and adolescent mental health)
- My Research
- Doctoral Thesis – mental health provision in schools
- Current – feasibility RCT of a group-based PTSD intervention for children in care.

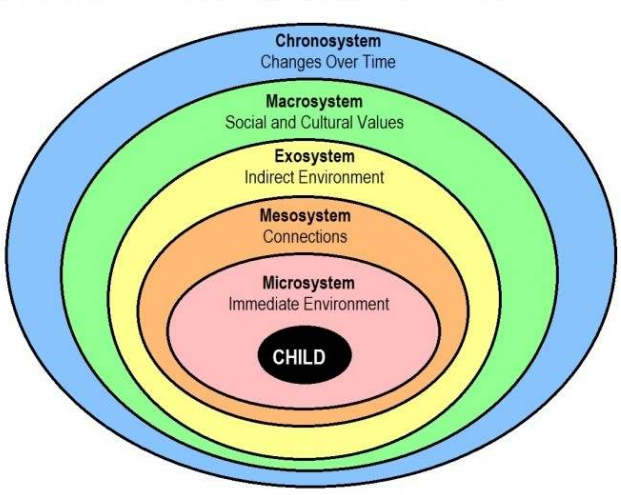
Educational Psychology

- Using psychology to identify areas of need and remove barriers to learning in children
- There are 4 broad categories of areas of need:
  - Cognition and learning
  - Communication and interaction
  - Sensory and physical
  - ***Social, emotional and mental health (SEMH)- this is where most of her work is***

For educational settings there is a legislative document called the special educational needs code of practice which sets out provisionally what they have to put in place for young people with special needs. When they reformed it in 2014 they did changed the name from BESD (behaviour emotion and social development) to SEMH (social, emotional and mental health). This is important in how educational psychologists look at mental health, it moves away from behaviour and more to the drivers and of behaviour and what a behaviour might be communicating.

This model is Bromf and Brenners ecological systems theory:

It thinks about how a young person is situating within a series of environmental systems. Its not just looking at a young person and their characteristics but looking at how they interact with, are influenced by and influence their environment.



When looking at a young person you don't just look at them, you look at all these different factors and how they influence them:

- **Microsystem** = immediate environment (e.g. family, school, friends)
- **Mesosystem** = connections between groups in the microsystem (e.g. relationship between school and home)
- **Exosystem** = indirect environment which is connections between the child's social environment and settings which influence is (e.g. parents workplace)
- **Macrostem** = social and cultural values (e.g. identiy values, SES, ethnicity)
- **Chronosystem** = changes over time patterns of events and transitions over the course of a young person's life (e.g. changing schools, divorced parents, bereavement)

There is a range of different work that you become involved in as an educational psychologist:

- The main part is on **consultation and collaborative problem solving** – you are frequently going into schools, meeting with adults and children and talking about what's going on for them and trying to generate ways forward. Going into meetings with schools, social services etc.

- **Assessment** – Lots of assessing in many different ways. E.g. talking with a young person and parents and gathering information , or using specific tools to assess things e.g. measures to asses self esteem, motivation, or using functional analysis of challenging behaviour to understand why a child is acting up – are they having difficulty understanding something? Is it because they are having relation difficulties with peers?

- **Intervention** - Your involved in helping plan interventions (what is a school going to put into place for a young person?) and also do direct intervention work e.g. CBT groups for young people using motivational interviewing, parenting group for parents who have a anxious child (psychoeducation)

- **Training** – training for schools, for parents. They do a lot of training to schools on identifying mental health difficulties. Training for young people on mindfulness.

- **Research and strategic development** – can be involved with schools on a more strategic level, e.g. helping them to staff mental wellbeing, help them to evaluate interventions they are using

- **Statutory Work** – quite a big section of what you do. It is where a local authority has been asked to make an assessment of a young person's needs to see if they need an education health care plan which is a statury document which outlines a young person's needs and outlines provisions that might be above what a mainstream school can provide – an educational psychologists is always asked to write a report as part of that process

- **Supervision**

- Large part of job is working to support young people with SEMH needs.
- Gathering information and formulating hypotheses about what might be contributing to difficulties to a young person
- Using that information to help to design/implement interventions and monitor impact (coming back and reviewing to see if that intervention has made a difference)

Young People's Experiences of School-Based Counselling

Becky's thesis

This topic is really important because at the time:

- 1 in 6 children aged between 5 and 16 years identified as having a probable mental health condition (ONS, 2020)
- Barriers preventing young people from accessing NHS Child and Adolescent Mental Health Services (CAMHS) include:
  - thresholds (young people who experience emotionally difficulty but at non-clinical levels might not meet the threshold for CAHMS but they still need support)
  - waiting times/referral processes
  - reluctance to attend clinic settings (there is evidence that young people are more likely to access school-based mental health survives compared to non-school based mental health survives) (O'Brien et al., 2015)
- Between 2009 and 2013 the NHS decreased the amount of money spent on CAMHS by almost £60 million

School-based counselling (SBC)

So she wanted to look at SBC as children with mental health issues couldn't/wouldn't get access to things like CAMHS

- SBC is a talking therapy in which a person is encouraged to discuss their feelings, emotions and behaviours, within the context of a trusting therapeutic relationship (BACP).
- Northern Ireland, Scotland and Wales – statutory legislation, so schools legally have to provide access to a school councillor. Not in England yet!
- Significant decrease in the levels of 'psychological distress' young people report before and after engaging with SBC (Cooper, 2009; Cooper et al., 2015; Hill et al., 2011)
- Key changes reported by young people:
  - Emotional – e.g. confidence, positivity, motivation
  - Behavioural – e.g. engagement in schoolwork
  - Interpersonal – e.g. improved relationships with others
  - Cognitive – e.g. easier concentration

Gemma Taylor
(epidemiology and addiction)

RESEARCH AIM:

- Within the psychotherapy literature process research has been valuable in identifying, describing and predicting the effects of the processes that bring about therapeutic change over the entire course of therapy.

- SO Becky wanted to explore the experiences and views of secondary school aged children who have engaged in SBC, with a view to constructing a theory of the processes by which SBC leads to positive outcomes for many young people.

- The research shows us that we know it has positive outcomes, but we don't have an understanding of the processes by which it is happening

METHODOLOGY:

- Qualitative research design – explore 'how' and 'why'

- In terms of her analysis she chose to do a Constructivist grounded theory – which is "derived from the phenomenon it represents" , so you are gathering information and developing a theory out of the information that you are gathering from those people (Strauss & Corbin, 1990)

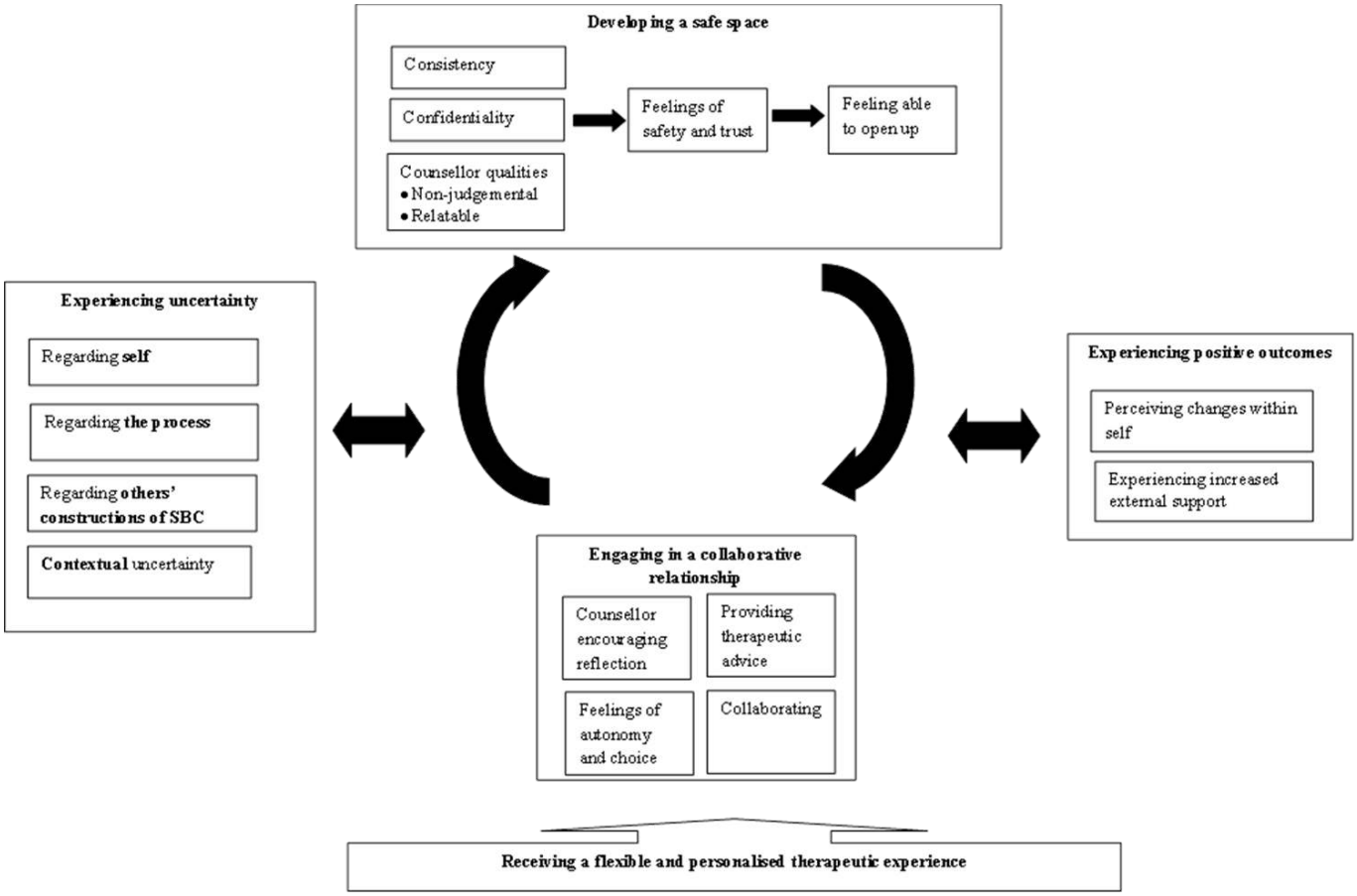
- Participants
  - 9 female students
  - 13 – 18 years old
  - Minimum of five sessions of SBC
  - She specifically chose young people who counsellors have identified as have had a positive experience

- Broad, open-ended interview schedule – rather than writing lots of specific questions and putting her ideas across she purposely had very broad questions (e.g. 'tell me about your experience of SBC').

- A lot of it was checking back with young people, 'is this what you mean?'. As you go along and code the transcripts, you take it back to them and say 'does this look right to you?'.

- So its very much about eliciting the lived experience of the counselling

This is the grounded theory model that Becky generated from the interviews



Narrative Process:

- Young people described how experiencing uncertainty regarding themselves and emotional contexts led them to seek out emotional support while also experience uncertainty about the process of SBC and others construction of SBC once this decision had been made.

- Once participants started to engage in SBC they described the importance of developing a safe space in which they moved from feelings of uncertainty towards feelings of being able to be open and honest with their councillor.

- A key process which participants articulated was the councillor establishing conditions which fostered feelings of safety and trust and subsequently allowed the young person to share often previously undisclosed feelings and emotions.

- The development of this secure trusting relationship appeared to be a facilitator in engaging in collaborative relationship where participants thought there councillor encourage reflection and suggestions, whilst the maintained a sense of autonomy.

- Participants described this sense of autonomy in collaboration as important in ensuring that they took ownership of making changes , for example in how they think and behave.

- Throughout the whole process, receiving a flexible and personalised therapeutic experience was of key important to the participant and highlighted the significance of tailoring the process to suit the needs and preferences of the individual

- Finally, participants described experiencing positive outcomes as a result of engaging in SBC, including perceiving changes in themselves and increased feelings of support from teachers and family, facilitated by the councillor.

- It is important to highlight this theory as not composed of discrete processes and participants moved from feeling uncertain and unsafe particularly early in the processes. Likewise, throughout their experiences participants reported the impact of being part of a safe therapeutic relationship and being able to engage collaboratively.

Its quite a **rich picture** and this only came from the interview processes, the fact that she was able to talk with them about their experience and really let them lead and be able to check back with them.

The methodological approach that she took lent itself to building a rich picture of their experiences

Key psychological concepts that came out of the model

- Carl Rodgers and his Person-centred approach (Rogers, 1957). He talks about 3 core conditions being necessary and sufficient within a therapeutic relationship. Some of the things that the young people talked about really mapped onto that:
    - Congruence → Relatability of councillor
    - Unconditional positive regard → Non-judgemental
    - Empathy → Feeling listened to and understood

- **Therapeutic alliance** (Bordin, 1979)
    - **Emotional connection + collaborative engagement**. This is talked about a lot in the psychotherapy literature that emotional connection isn't sufficient for change to occur, it needs to be collaboration and agreement of goals that the client finds meaningful

- **Self-determination theory** (Ryan & Deci, 2008). This suggests that when a young person engages autonomously, then their intrinsic motivation is higher. This maps on well to her research as when the young people were encrouged to reflect on issues themselves – rather than being told what to do- they were much more likely to make changes to their thoughts or behaviour.
    - **Autonomy**
    - **Intrinsic motivation**

Implications

- A lot of parallels were drawn between the process in people from this study and those from previous psychotherapy literature

- So its quite likely that these processes aren't specific to SBC, but when we think about mental health interventions for young people more generally a lot of these are true e.g. taking time to develop safe and trusting relationship as a basis for subsequent positive change

- Conditions of mental health interventions

- Time to develop a safe and trusting relationship

- Confidentiality

- Personal qualities

- Autonomy and choice – especially for children who haven't chosen to engage in an intervention but maybe have been referred. Ensuring that a young person is able to make decisions regarding

the nature of their involvement, that they feel valued as an equal partner, is essential for achieving positive outcomes.

RELATE

Recovery Learning for Adolescents After Traumatic Experiences Trial

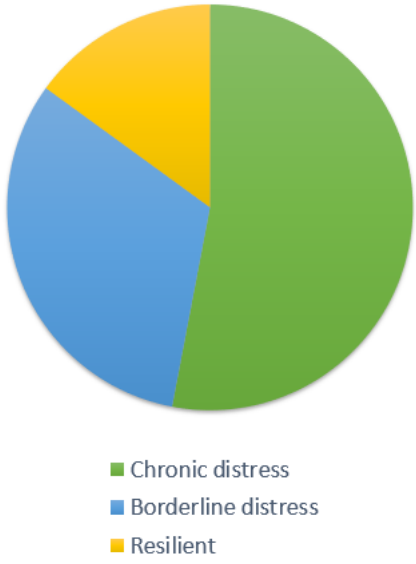
- **Addressing elevated PTSD symptoms in young people in care: A randomised feasibility trial across social-care and mental health services.**
- They are looking at the efficacy of a group based intervention to symptoms of PTSD
- Now she's going to talk about the work she is currently involved in
- She started in March on this research trial
- A lot of the research backing was done by Rachel Hiller

Children/young people in care

Why is this research area important?

- Over 78,000 children and young people in care in England
- Commonly due to the experience of abuse and/or neglect
- Multiple other risk/adversity factors e.g. living in poverty, been exposed to significantly parental mental health difficulty, substance misuse
- High rates of mental health difficulties – Melts(2003) 75% of looked after children between 5-17 met the criteria for a mental health disorder

- Typically considered to have poor access to mental health services



Broader psychological wellbeing

- *N* = 207 looked after children
- SDQ scores over first five years in care (strengths and difficulties questionnaire, looks at difficulties in emotions, conduct, hyperactivity, attention and peers)
- Most common profile was chronic internalising and externalising problems (>50%) (Young people who have scored in the abnormal SDQ range and remained in the range the whole 5 years)
- These young people less likely to be in stable placements (may have a lot of moves between placements)

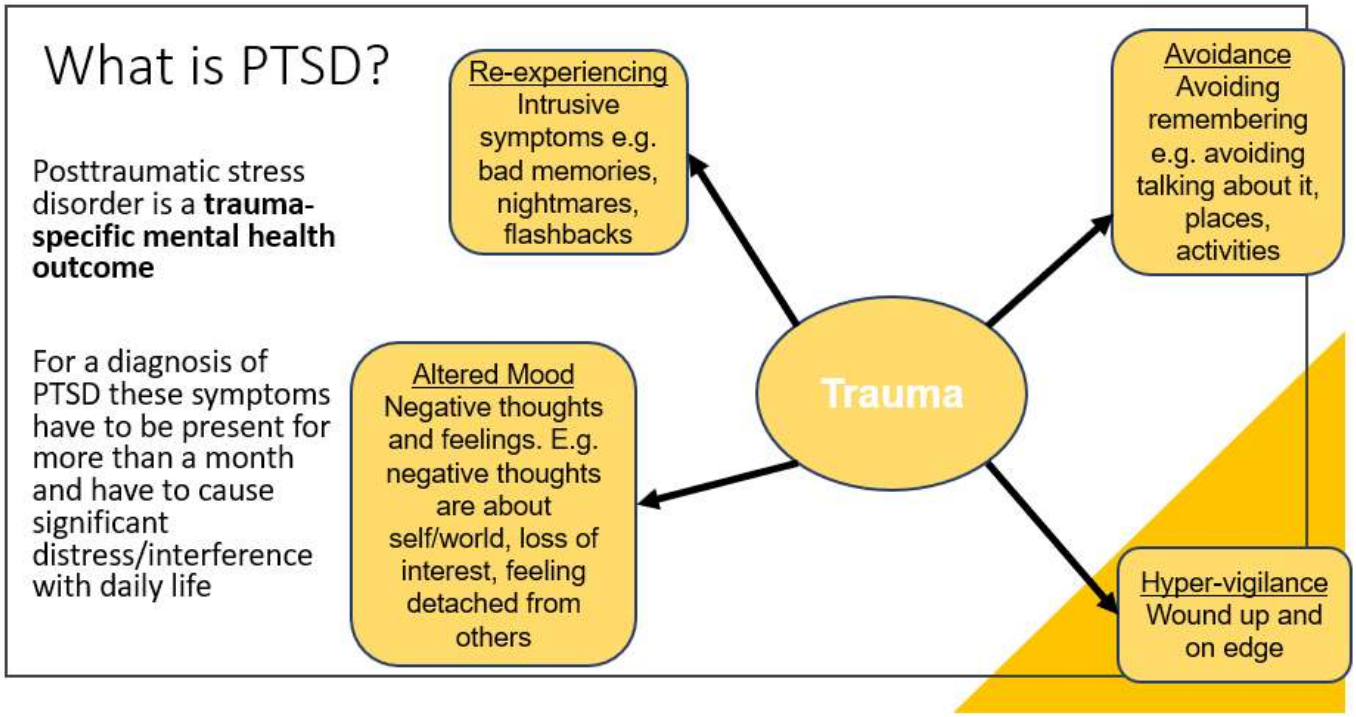
Hiller & St Clair. (2018). *Child Abuse & Neglect*

Broader psychological wellbeing:

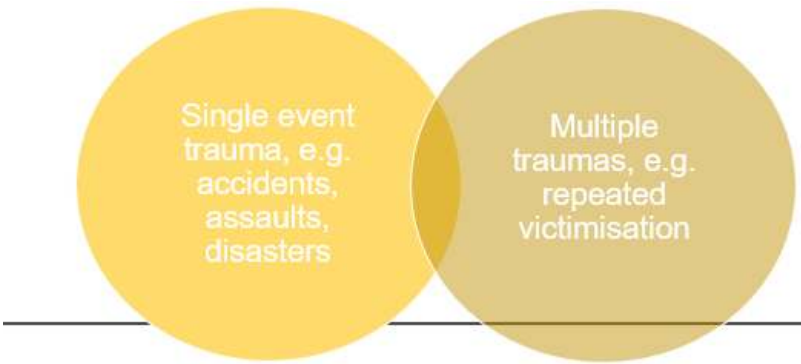
- Looked after young people are 12x more likely to meet criteria for post-traumatic stress disorder (PTSD) than peers (Ford et al., 2007)
- 75% screened with high PTSD symptoms in specialist CAMHS (Morris et al., 2015)

What is trauma?

- Being exposed to threatened or actual death, serious injury, or sexual violence
- Can be something you can **experience yourself**, **see happening** to someone else, or **learn about happening** to someone close to you


What is PTSD?
Posttraumatic stress disorder is a **trauma-specific mental health outcome**
For a diagnosis of PTSD these symptoms have to be present for more than a month and have to cause significant distress/interference with daily life
Re-experiencing
Intrusive symptoms e.g. bad memories, nightmares, flashbacks
Avoidance
Avoiding remembering e.g. avoiding talking about it, places, activities
Altered Mood
Negative thoughts and feelings. E.g. negative thoughts are about self/world, loss of interest, feeling detached from others
Trauma
Hyper-vigilance
Wound up and on edge

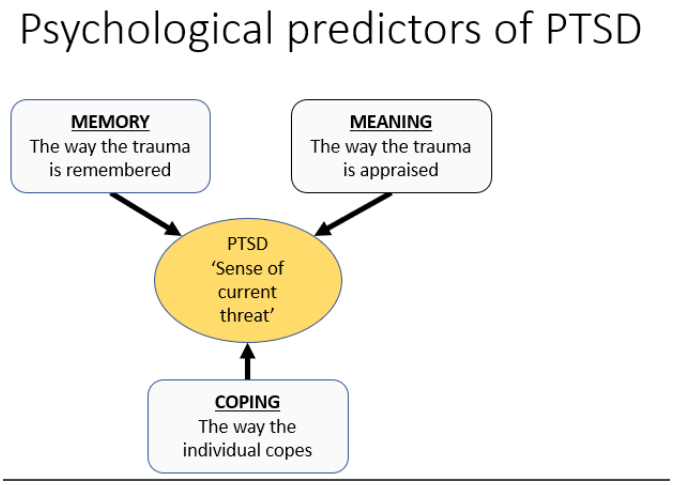
- Not all young people who experience trauma go on to develop PTSD
- These are some of the factors that might lead to or maintain PTSD
- Cognitive and behavioural theories highlight several processes that might be involved – the most highly cited model is this one – Ehlers and Clark cognitive model of PTSD (2000). This model focuses on three core psychological processes that maintain a persons ongoing sense of threat after they've experienced a traumatic event



- Rachel Hiller did a study which looked specifically at the cognitive processes in young people who met the criteria of PSTD.

- These young people completed questionnaire measures that measured there levels of these 3 areas and found moderate strong correlations between all 3 cognitive processes **and** concurrent PTSD symptoms **and** symptoms a year later.

- This might give us more of an insight into why some people develop PTSD and some people don't



Hiller et al. (2020). *The Journal of Child Psychology & Psychiatry*

Cognitive Processes:

- **Meaning** = a person forms negative appraisal about the trauma which they then generalise to other situations e.g. 'I'll never get over what happens', 'I'll never trust anyone', 'I can't cope when things get thought', 'Anyone could hurt me', 'I can't stop bad things happening to me'.

  35-40% of this sample strong endorsed this sense fo vunerabiliy in terms of how those negative appraisal that they formed because of the trauma were overgealised to other areas of their life

- **Memory** = How the traumatic memory was encoded- that can maintain a sense of threat. Trauma memories tend ot be quite disorganised, with less information about context/ what/where/when. They also contain a lot of information about the emotions and the sensory experiences when the trauma was experienced e.g. you might remember how you felt, what you could hear or smell. This can contribute to an ongoing feelings of threat and also rexpereincing because the emotions and sensory sensations are what can come back.

  In this sample 50% difficult to speak about their experiences and 30-40% disorganised, sensory-laden memories

- **Coping** =This is about engaging in maladaptive coping stragies e.g. cognitive avoidance, rumination. They found in this sample that 50% ruminating about what happened/why it happened to them 30-40% use avoidant coping to manage memories

- These psychological processes were more important in terms of predicting symptoms severity than actual maltreatment severity (the level of maltreatment the young person experienced or the age they went into care)

- The clinical implications is that it gives psychologists areas to focus on and target in treatment and intervention (these cognitive processes). It also gives us more of an understanding about what actually contributes to the development of PTSD.

Treatment for PTSD

- Trauma-focused CBT is first-line recommended for children aged 7+ years old (NICE, 2018)

- Trauma-focused CBT targets key psychological processes and leads to substantial reductions in PTSD and comorbidities (e.g., anxiety, depression), even for complex groups (e.g. Cohen et al., 2004; Sachser et al., 2017).

- Trauma-focused CBT really focusses on the underlying cogntive processes. One common element targets memory - is getting children to do narrative work around the trauma e.g. drawing or writing to reprocess the trauma in more of a narrative way, make it less fragmented and disorganised and take out some of the sensory and emotional side. Using narrative structure to make it processes in a more cohesive way.

- Or looking at the avoidance element – e.g. graded exposure work where you get a young person to identity a situation they might be avoiding because of the trauma and in a safe way to graded exposure work getting to put them into safe situations which can get them to see that they are safe and okay

- You don't need to talk explicitly about the traumatic experiences, its more about how they've made sense of it and get them to process it in a way to give them more control over ti

- But there are a lot of people in care struggling with PTSD and there are is bad access to CAMHS so not all young people are able to access trauma-focused CBT. Especially because its 1 to 1 and around 8-20 sessions.

- So its really important that they can develop more easily scalable and finance low intensity interventions to target the needs of a large group of young people. This is what the trial Becky is involved in currently is about

Teaching Recovery Techniques

- The research is trailing teaching recovery techniques, which is a lower intensity intervention and is focused on psychoeducation and trauma focus CBT.
- They want to know if this might help young people and alleviate reduce symptoms of PTSD
- It is an intervention that was developed by the Children in War foundation and it has been used widely with children who have experienced different types of trauma e.g. living through war, natural disaster, refugees and found to be really good.
- But it hasn't been used before in children in care who are experiencing symptoms of post traumatic stress – **LITERATURE GAP**
    - Can we get some benefits from lower-intensity treatments?
    - Might it help some young people engage better in high intensity treatments?
    - Teaching Recovery Techniques is a 7-session programme (5-sessions for young people; 2 sessions for carers/keyworkers)
    - Focused on teaching skills to manage (and overcome) elevated PTSD symptoms

Recovery Learning for Adolescents After Traumatic Experiences Trial

At the moment they are in the early stages of the trial. It is RCT which is good

They are getting social workers to screen young people in care to identify those with high PTSS.

These young people are being randomised to either:

1) Receive online TRT (had to happen because of COVID)

2) Care as usual

It is **mixed methods** research as they are gathering information on:

- Clinical outcomes – PTSD measures (self-report and interview), SDQ, SMFQ (short mood and feelings questionnaire which is a depression measure), functioning and relationships – **quantitative measures to look at symptom change**
- **Qualitative measures** – interviews with young people, carers, group leaders and social workers. A lot of this is going to be focused around their experiences of the intervention. This is important if the quantitative results show there is a change. Important if it is something they want to scale up and deliver to more young people
- Assessments at baseline, post-intervention and 3 months post-intervention follow up

Key considerations/reflections

- There's no one 'right' method in research
- If you are doing applied research then generally **mixed-methods** are best. Need to quantitative data on pre and post results to see if it worked, but then qualitative to see the 'how's' and 'whys'
- Where possible, try to **co-produce** research and dissemination materials- e.g. in her field there is a lot of speaking with young people who might have a diagnosis or live in care and asking them what is important to them
- Always useful to ask yourself: *Who cares? Why is this research important? What difference is this going to make to peoples lives?*
- Need to think carefully about how we disseminate findings to the public and policy-makers - research is good but how are we going to get these things out to real people

- Practitioner Psychologist – constantly using research skills

Ed Keogh
(psychology of pain)

WEEK 10 NOTES LECTURE 4/12/20 – Friday

Understanding Behaviours In Health– Professor Ed Keogh

- Can you summarize their main area? PAIN
- Do you understand their main methods? Mainly quantitative
- Can you critically consider their main ideas and methods?
- Good? Bad? Is there any work to be done?
- 9 PDF papers left on moodle to make notes on:

MAIN STUDY WAS EMMITED FROM THE VIDEO

Attention and pain

- Moore, D., Eccleston, C. & Keogh, E. (2017). Cognitive load selectively influences the interruptive effect of pain on attention. Pain, 158, 10, 2035-2041. doi: 10.1097/j.pain.0000000000001011.

- Keogh, E., Cavill, R., Moore, D. & Eccleston, C. (2014). The effects of menstrual-related pain on attentional interference. Pain, 155, 4, 821-827. doi: 10.1016/j.pain.2014.01.021

- Keogh, E., Ellery, D., Hunt, C., & Hannent, I. (2001). Selective attentional bias for pain-related stimuli amongst pain fearful individuals. Pain, 91, (1-2), 91-100. ISSN: 0304-3959.

Sex differences in pain

- Boerner, K. E., Eccleston, C., Chambers, C. T., & Keogh, E. (2017). Sex differences in the efficacy of psychological therapies for the management of chronic and recurrent pain in children and adolescents. Pain, 158 (4) 569–582. doi: 10.1097/j.pain.0000000000000803.

- Keogh, E., McCracken, L. & Eccleston, C. (2005). Do men and women differ in their response to interdisciplinary chronic pain management? Pain;114:37-46. ISSN: 0304-3959.

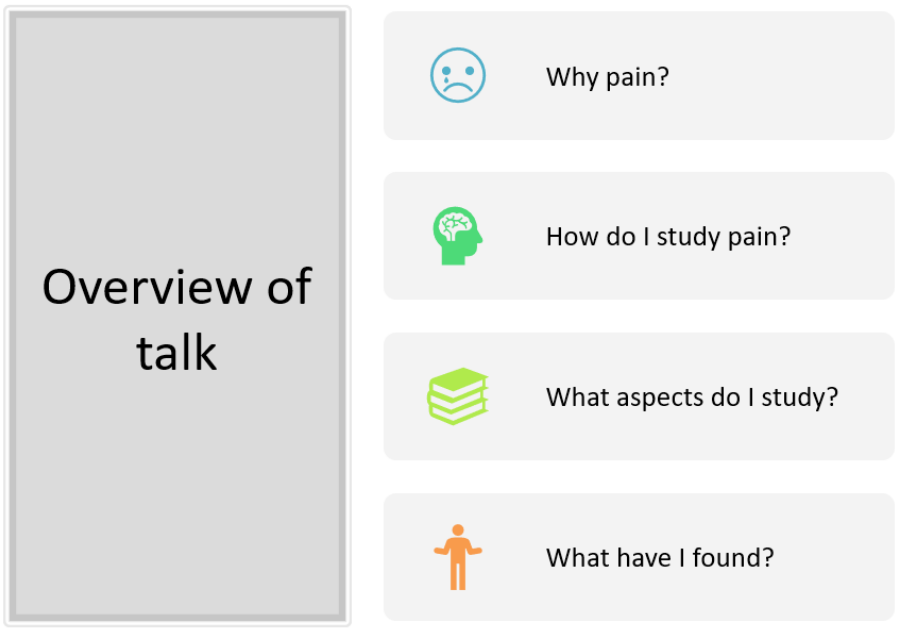
- Keogh, E., Hatton, K. & Ellery, D. (2000). Avoidance verses focused attention and the perception of pain: Differential effects for men and women. Pain, 85, (1-2), 225-230. ISSN: 0304-3959.

Social context of pain

- Edwards, R., Eccleston, C., & Keogh, E. (2017). Observer influences on pain: An experimental series examining same-sex and opposite-sex friends, strangers, and romantic partners. Pain. 158(5):846-855. doi: 10.1097/j.pain.0000000000000840.

- Walsh, J., Eccleston, C., & Keogh, E. (2014). Nonverbal pain communication through body posture: The creation and validation of a stimulus set. Pain, 155(11):2282-90 doi: 10.1016/j.pain.2014.08.019

- Keogh, E., Hughes, S., Ellery, D., Daniels, C. & Holdcroft, A. (2006). Psychosocial influences on women's experience of planned elective caesarean section. Psychosomatic Medicine, 68, 167-174. ISSN 0033-3174.



WHY PAIN?

- A universal index of suffering (it effects all of us)
- Highly prevalent (20-40% UK population are currently in pain)
- One of the key risk factors is age- as you get older you tend to expereince more pain
- Huge cost: person, families, society

WHAT IS PAIN?

- One of the key terms in defining pain is: Nociception
- "Neural process of encoding noxious stimuli" (IASP, 1994)
- There are different biological/physiological mechanisms that underpin the detection of something that is harmful (e.g. putting your foot in a fire)
- They are various neural processes what are associated with the encoding and transmission of this noxious harm.

- **Transduction** – you do the thing (e.g. putting foot in fire- the cross over of the heat to the foot) It is the transfer of signals from chemical to electrical
- **Transmission** (from PNS to CNS) – The information gets projected through these pathways (burning gets sent from the foot through the body to the brain)
- Although there are these pathways, it is not just a one-way system and there isn't just one way.

- **Modulation** (alters transmission) – The information that is coming up through the spinal cord to the brain can be modulated (changed), it can be dampened down or it can be amplified. There are important top down processes that modulate pain.

- The Purple to red neurological process is called the **nociceptive** system. But what the key difference is the experience of pain, just because you have the physical process operating, it doesn't necessarily mean that you experience pain.

- The experience of pain varies and we need to understand why, this is were psychology comes into it.

- **Perception** - The perceptual process and the way in which these sensations are understood, experienced and responded to can have an effect on the experience of pain itself. Pain is seen as more of a perceptual experience which is a product of both these neurological processes but also **psychological processes as well**. The way we think and the way we feel can impact pain.

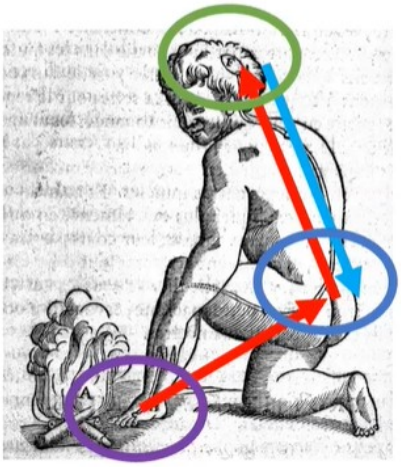
What is pain?

- There are a whole range of different ways you can consider and define pain.

- These definitions change and are constantly debated

- CRITICAL - The experience of pain is not just defined as a sensory experience, it is an emotional one as well – you cannot separate them

- Williams and Craig goes beyond the individual and says the experience of pain is also effected by the social context which you find yourself in e.g. who you are with can have an impact on pain experience. This also is not just how we perceive pain but also how we react to it and what we do about it



How I study pain

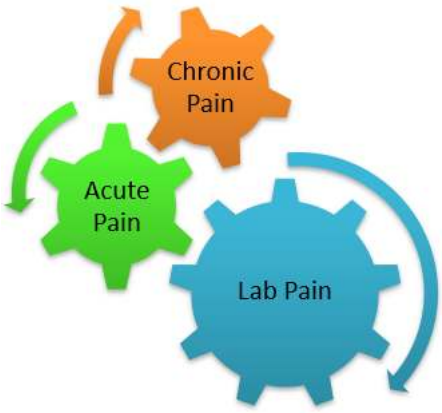
- Guiding principals
  - Experimental psychology (core training)
  - Bench to bedside, and back again (application)
- Types of pain
  - Everyday, immediate and acute pain episodes (e.g. stubbing your toe)
  - Chronic pain and disability
  - Experimental pain

- One approach is to talk to people who are experiencing chronic pain and see how those experiences vary

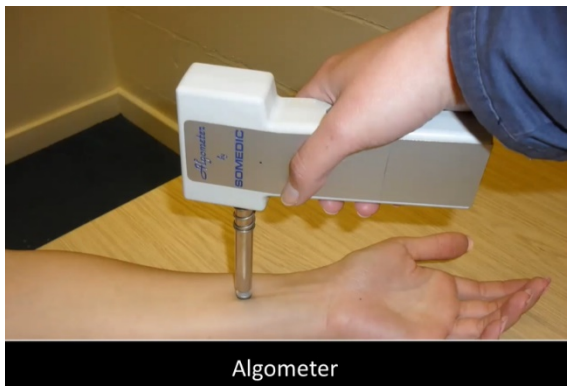
- They have a pain lab where – in a highly controlled manner- induce pain and give people a temporary pain experience. One of the reasons we do this is because we control what is going on, we know exactly the type of stimuli people have been exposed to. But the disadvantages are also that we can control it, its not like real life pain. Field studies do somewhat translate to lab studies, but its not great – because when you put people into a less controllable environment then there is greater source of variation including the social context and expectations. Ed argues to use the pain research in the lab as a starting point and then you see how effects might translate in the real world- some might translate in the real world and some might not.

- We can manipulate environments to mimic pain

- Are their individual differences in pain? Then once we've isolated these differences , we can start to see how that might translate out of the lab into the real world



- They use a pressure pain **algometer** to mimic muscular and skeletal types of pains, like after going to the gym in the first time in a while. They can get an index of someone's pain threshold

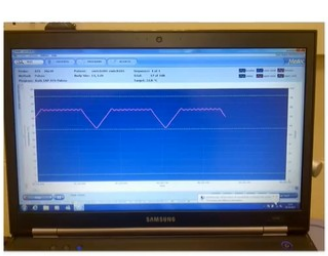


Algometer

Thermal Stimulator

Its another way of mimicking pain.

This is a stimulator which you put onto the skin and you gradually increase the temperature



Thermal Stimulator

What do I study?

2 example Areas of pain he is going to talk about:

- Attentional processes in pain
- Sex and gender differences in pain – individual differences

Attention and pain

- (more cognitive view, how we think and how that has an impact). Things like expectations and placebo effects point towards the roll of cognition has in pain. The links between attention and pain are bidirectional – how you attend to things can have an impact on pain , but pain can also have an impact on attention). Theres also the nocebo effect where you might have more negative expectations and that can increase pain sensitivity.

- How we think can have an impact on pain experiences.

- **Research Question: What is the relationship between attention and pain?**

- Attention modifies pain sensitivity (distraction e.g. listening to music) – how effective are these cognitive techniques for modifying experience of pain. Does distraction work in a similar for everybody? Does it have a long term benefit? Distraction can work for some people some of the time, but not everyone and everything. Its often a short term strategy in can take attention away but as a long term strategy it is difficult to maintain

- Attentional biases to pain

- Pain interferes and distracts people -The way in which pain interrupts and distracts you from engaging in tasks. E.g. when you have a really bad headache it is really hard to write an essay. One of the functions of pain is to interfere and disrupt you and tell you to do something about it. This is a time when pain is actually good for us and **functional**, it is linked to survival. Everyday sort of pains are essential to helping us survive e.g. leaning on something hot. Pain grabs your attention and tells you what not to do. In congenital conditions where people don't experience everyday day, life expectancy is extremely effected. This also might highlight the role of genetics in maybe contributing to some variation in pain

What have I found?

- He looked at not just laboratory pain but also contexts of everyday pain- he tried to isolate the elements of attention and cognition that are most susceptible to the intervening effects of pain. He discovered that not only are certain parts of attention more susceptible than others, but we found the more higher level executive functions , the areas that require a lot of concentration.

- Not just in lab but real contexts- he's done studies looking at the interfering effects of headaches and menstrual pain and there is the same trend that an interruption seems to occur.

- Looked at attentional biases towards pain – are we still attending towards pain or are there other sources of information. There is evidence for an attention grabbing context.

- Discovering existence of selective attentional biases towards pain-related stimuli in healthy individuals with a fear of pain

- isolated the aspects of attention that are most susceptible to pain

- established that pain interference also occurs in everyday, pain

- Ed wants a public discord about what pain actually is. He wants the public to know that there is a psychological element to pain and that pain is a warning signal, but we need to do something about it.

- He does work trying to get involved with media and newspaper debates to try to get across that there is a psychology of pain.

Sex and gender differences in pain

- He has been looking at individual differences in experience that occur around pain.
- From big epidemiological studies we know that men and women have different experiences of pain
- When you look at the evidence, the general pattern seems to suggest that women experience more pain in comparison to men. This ranges from loads of techniques e.g. in lab experiments, who turns up in pain clinics. Across the life time women report more pain, in more body areas, with greater frequency and intensity in comparison to men.
- The critical question is why? There is a whole range of explanations. E.g. Biological factors – are there differences in the downward inhibitory modulation of pain or sex hormones proposed as a potential mechanism that might explain this variation – does oestrogen have more vulnerability? Does testosterone have a protective effect? There is a whole range of loads of reasons.
- The work they have been focusing on is on psychosocial factors – are there psychological differences that might explain some of this variation between men and women.
- Also – what about the social context. Does who you are with have an impact on pain and when it is reported. There is a difference between when the experience pain and when we communicate it
- Main is a subjective experience – the main way to find out if someone is in pain is to ask them – no matter how much fancy equipment you have it comes back to asking people how much it hurts on a scale from 1 to 10 - it is a subjective experience.
- Is it a reporting bias? Is it something to do with the context?

Research Question: Do men and women differ in pain? If so, why?

- Pain sensitivity; treatment (analgesia); behaviour
- Why? Biological, Psychological, Social Mechanisms

What have I found?

- Gender differences in pain outcomes: sensitivity; interdisciplinary treatment
- Men and women differ in pain behaviours (coping strategies)
- The (gender) context of pain

- They have found that things like there might be a slightly stronger association with depression and pain in women compared to men. And that anxiety may be more closely linked to pain in men than in women. So there are complicated socio-cognitive processes that might be at play.

- Men and women have different coping strategies. Men seem to benifit more from focusing on pain rather than avoiding it

- While there are very general differences between men and women we also know that the variation BETWEEN men and women is probably not as great as the variation that occur WITHIN men and women.

- He is now moving to look more a the wider social context and how that induces differences in men and women's pain experience. And also constructs like gender and masculinity and femininity and what those factors are related to the experience of pain.

- Men and women's experience of pain is effected by the social context – pain doesn't happen in isolation, pain is a social experience. Who we are with and how connected we are to them. There have been studies where people have manipulated the observer with the person experiencing the pain. When you bring a man into the pain lab with and whether they have a man or women accompanying them, you see the extent just the person in the room has impact on perception of pain – the answer was yes. If you are a male accompanied by a female the male with report less pain than with if you were accompanied with a man. And a female accompanied with a male will report less pain than if they are accompanied with a man.

Expression Recognition

- He is looking into the way in which we communicate pain through non-verbal signals e.g. do men and women communicate pain in a similar way?
- They do tend to, but where the research is starting to is that there might be differences in how men and women respond to and detect these pain expressions.
- He has been looking at trying to combine those cognitive biases and attentional processes with the detection of pain expressions. E.g. facial expressions of pain as well as the body expressions and movements that we engage in.

What impact has my work had?

- He is very keen on pain education and getting that message out there.
- He will deseminate and spread his message
- That can be to other academics in the pain field through to Uni option units on pain
- Talking the public domain and to policy makers

What are the ethical implications?

- There are guidelines on what you can use – the international association study of pain has guidelines in way in which they can study pain
- The equipment they use is highly specialised – they are all intricate level clinical devices that have been developed to look at pain tolerance and thresholds – they have safety protocols built into them e.g. the thermal simulator has safety protocols where it will stop once it gets to a point were pain stimulation will turn into physical injury or damage
- All of his work geos through stringent ethical protocols and committees

Sally Adams
(alcohol and tobacco use)

WEEK 11 NOTES LECTURE 7/12/20 – Monday

Cigarettes Alcohol Effects on Behaviour and Cognition - Dr Sally Adams

- Two PDF papers left on moodle to make notes on: https://moodle.bath.ac.uk/pluginfile.php/767494/mod_resource/content/4/Adams%20%282013%29.pdf Effects of alcohol on disinhibition towards alcohol-related cues Sally Adams ∗, Alia F. Ataya, Angela S. Attwood, Marcus R. Munafò

- A systematic review of the next-day effects of heavy alcohol consumption on cognitive performance Craig Gunn, Marlou Mackus, Chris Griffin , Marcus R. Munafò, & Sally Adams https://moodle.bath.ac.uk/pluginfile.php/1451501/mod_resource/content/3/Gunn_et_al-2018-Addiction%20%281%29.pdf

- Can you summarize their main area?

- Do you understand their main methods? Quantitative

- Can you critically consider their main ideas and methods?

- Good? Bad? Is there any work to be done?

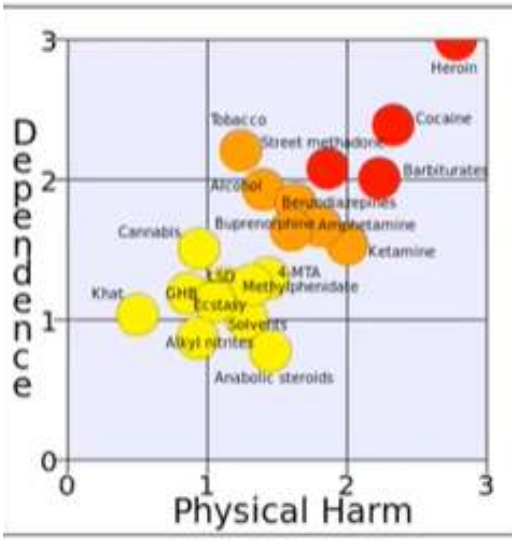
Overview
Why do I study alcohol and tobacco use?
How my career and research has evolved
Current research
Future research

Alcohol and Tobacco
Effects on Behaviour and Cognition

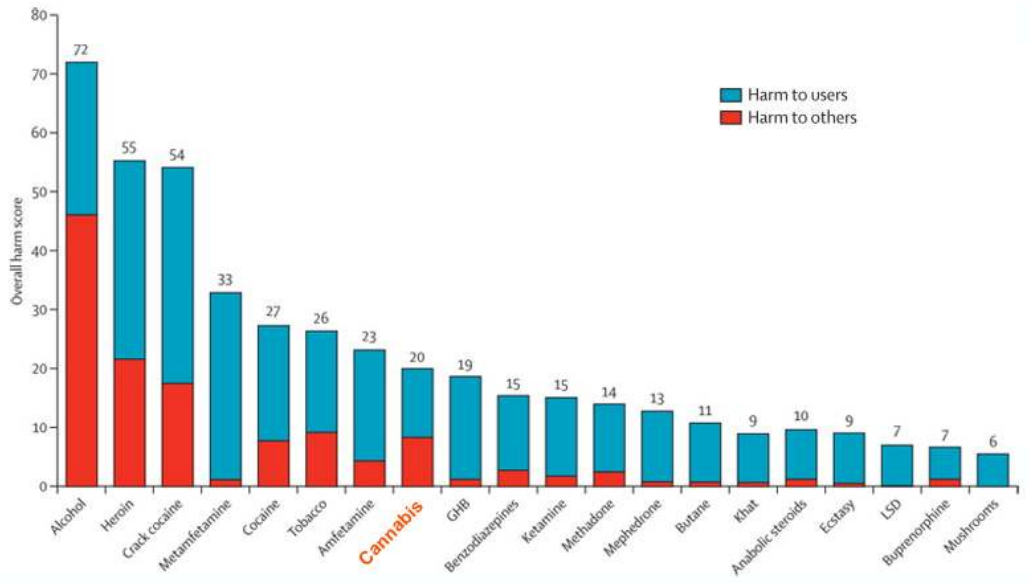
- These drugs are legal and widely available – so can they influence the way we think, the way we feel, the way we act
- She has used a very similar approach to studying alcohol and tobacco over her career. **She has always focussed on using preconscious experimental tasks to look at addictive behaviours**
- Most of Sally's work is quantitative. She uses a combination of experimental tasks and self-report measures (e.g. questionnaires about mood, subjective intoxication 'how intoxicated do you feel now'?)
- In recent years there has been a move to qualitative research in Sally's department.
- Sally did do a study on hangover in students which was purely qualitative. They asked people things such as 'Do you see hangovers as a deterrent?', she was interested in peoples experience of having a hangover and whether it puts them off drinking.
- **Her research methods haven't really changed,**

Why do I study alcohol and tobacco use?

- This was a landmark piece of research that was produced by Professor David Nutt, he was the former drug advisor to the government but he was sacked for saying that horse riding was more dangerous than taking MDMA! It was very controversial at the time. He was right though more people die from horse riding than from MDMA.
- This graphs shows on a scale from 1-3 how likely is a substance to cause dependence (how addictive it is) and along the bottom how likely it is to cause harm to the individual who is using it.
- Right at the top you see heroin and cocaine which are addictive and cause harm to the individual



- But there are legal drugs as well, which also cause dependence and physical harm
- Alcohol and Tobacco cause more harm and more dependence than ecstasy, LSD and cannabis



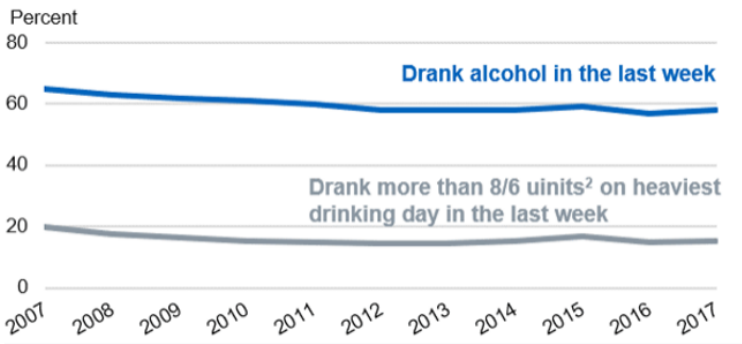
- When he did another study but added in the likely effect on others the drug has – alcohol outstripped every else , because alcohol effects not only the person using it but also others around them. This study factors in loads of things like use of NHS time, use of police time, vandalism, harm to others e.g. fights and domestic violence. Alcohol really is a serious and damaging drug, it has a dependence potential but it also has divesting impact on the individuals using it AND the individuals around them

- Its very controversial because things like LSD and ecstasy are classified by the government as class A and the most harmful, but legal things like alcohol and tabaco are massively more dangerous

- If alcohol were to become illegal it would probably be a class A drug. It is only allowed because it is so engrained into Western Culture. It is a ritual right in growing up. And after 6pm there is nothing to do but drink, all coffee places shut etc.

- Nutt, D.; King, L. A.; Saulsbury, W.; Blakemore, C. (2007). "Development of a rational scale to assess the harm of drugs of potential misuse". *The Lancet* **369** (9566): 1047–1053. - - - **THIS PAPER IS VERY GOOD TO READ**

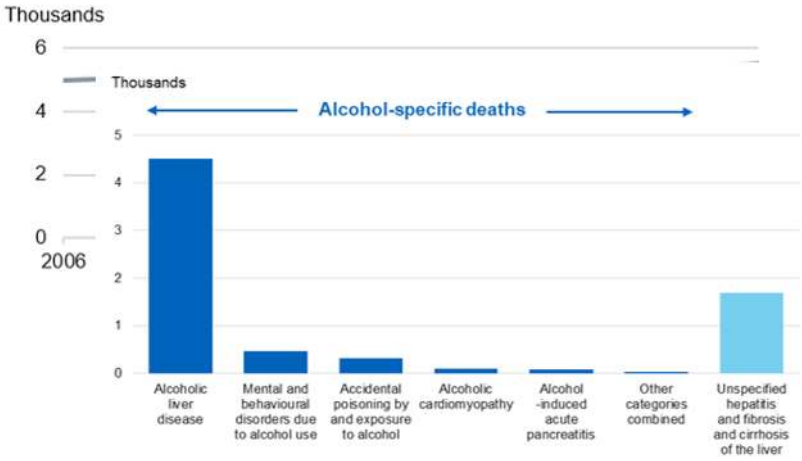
UK Alcohol Use



We hear in the media, and it is true, that alcohol usage is declining in the UK population. People who drink once a week

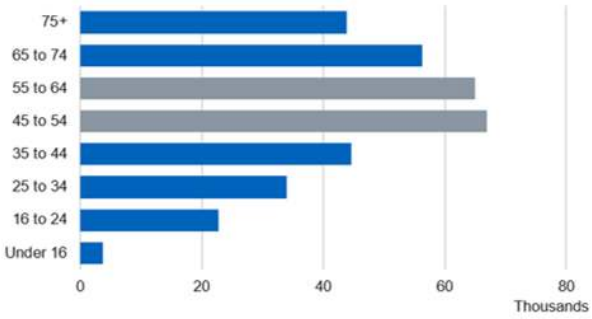
UK Alcohol-Specific Deaths

and people who binge drink are both declining



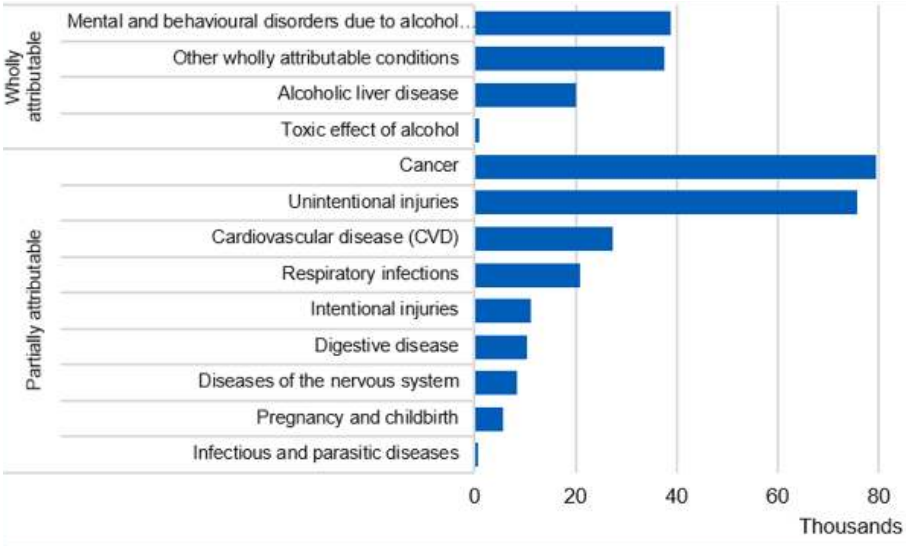
BUT! Alcohol specific deaths are increasing. These aren't even deaths where alcohol may have caused a death, these are direct alcohol caused deaths.

UK Alcohol Admissions



Pattern of use by age is important. We are being told in the media that young peoples drinking is decreasing, but yet in the media is constantly labelling young people as the ones causing trouble on a Friday night and it is there drinking that it costing the economy the most.

BUT actually the group from 45-64 that are responsible for the greatest amount of alcohol hospital admissions than any other age groups.



These admissions are the most from cancer, but really close behind is admissions due to unintentional injuries – its not just young people causing this needing to get there stomach pumped after a night out, it is also older people doing this

Its really important we tell the truth about the stories that addiction is telling us about the UK

UK Tobacco Use

Tobacco use is the leading cause of cancer in the UK, obesity isn't far behind.

There are 15% of the UK that smoke, and this has decreased, but there are vulnerable pockets of people. If you live in an area of socio-economic deprivation, you are much more likely to smoke and much more likely to be ill as a result of your smoking.

Costs of UK Tobacco Use

NHS event	Estimated smoking-related burden
GP visit	£794 million
Practice nurse visit	£111.7 million
Prescriptions	£144.8 million
Outpatient visit	£696.6 million
Hospital admission	£851.6 million
Total	£2.6 billion

The costs of tobacco use in the UK are wide-ranging and massive.

Tabaco companies say that this is covered by the tobacco tax, but they don't by a long stretch.

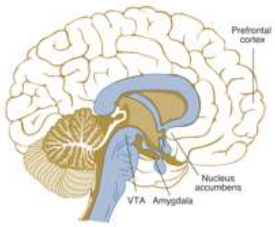
- **It is difficult to experimentally measure things like alcohol and tobacco use so it is really important to get the right research methods. In self report, people often deny having a drinking problem and under estimate the amount that they drink.**
- **So Sally looks at implicit responses, things that are outside of our conscious awareness that you can capture with experimental psychology tasks.**
- She did her dissertation on "The role of self-esteem and sex-role orientation in student drinking" – unsurprisingly she found that students with lower self-esteem drank more. She also looked at gender roles, how many masculine, feminine and androgynous traits people. She found that

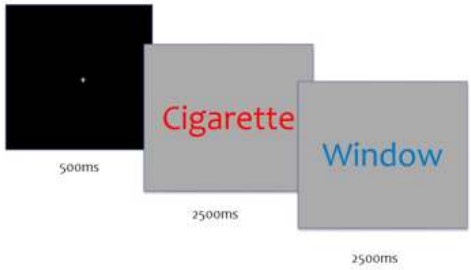
biological
greater

Dopamine Depletion Placement

University of BRISTOL

masculinity
-regardless of sex- predicted drinking.





- Sally's masters was on **depleting peoples dopamine in there brain to understand whether people crave cigarettes both implicitly and explicitly.**
- They gave people a really disgusting drink, that included all the amino acids your brain needs to synthesise dopamine or a drink that was disgusting that didn't include all them.
- They wanted to understand how important dopamine was for understanding peoples craving for cigarettes, but also how they implicitly craved cigarettes.
- When they got to the point that there peak dopamine was depleted, they asked them how much do you crave a cigarette now – this was the self report element.
- But they also got them to complete a computerised tasks (the stroob task where you have to say the colour of the word not the word) but they made it a smoking version. They see words presenting in different colours from 2 different categories: smoking related words and neutral related words.
- If they are showing a selective processing bias – if they are showing a preconscious bias to smoking words or stimuli, then you will be slower to colour named the smoking related words because they grabbed your attention and interfered with the task of colour naming.

They found that when the depleted people's brain dopamine, we saw that the attentional bias for smoking related words was STILL present, but the self reported craving was no longer showing. So this shows that dopamine controls a very specific part of peoples want of cigarettes.

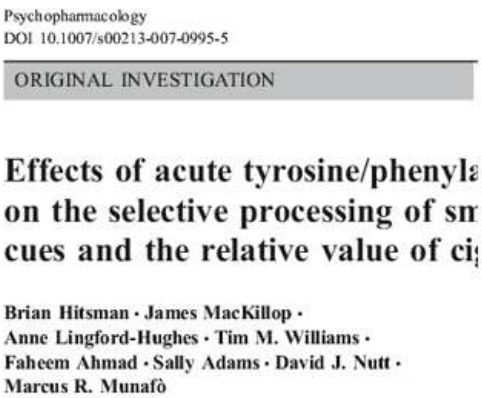
She did her PhD looking at the "Psychopharmacology of Acute Alcohol Intoxication"

- This just means that you are interested in the way a particular drug influences the brain to bring about changes in cogitation and behaviour.
- She was particularly interested in what happens when we consume acutely (when we a drunk) and also what happens when we use alcohol for a long-period of time.
- How alcohol as a psychoactive substance influences cognitive processes that may drive future use of alcohol
- Acute vs Prolonged Use of Alcohol

In the literature there were 2 cognitions that kept reoccurring :

- Impulsivity – engaging in behavioural without really thinking
- Cognitive Bias for alcohol-related cues - when we drink, does alcohol change the way our brain processes alcohol related cues in the environment e.g. bar displays, seeing other people drink

The reason she chose these cognitions is because they are targets for potential treatment strategies to reduce heavy and harmful alcohol consumption


Psychopharmacology
DOI 10.1007/s00213-007-0995-5

ORIGINAL INVESTIGATION

Effects of acute tyrosine/phenyla on the selective processing of sm cues and the relative value of ci

Brian Hitsman · James MacKillop · Anne Lingford-Hughes · Tim M. Williams · Faheem Ahmad · Sally Adams · David J. Nutt · Marcus R. Munafò

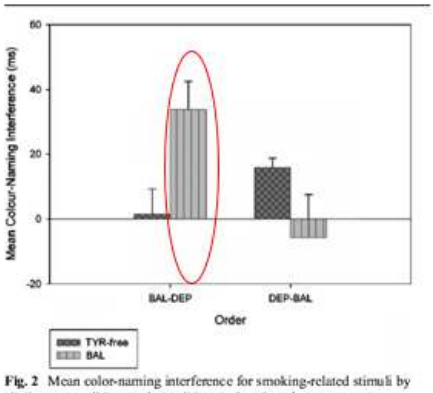


Fig. 2 Mean color-naming interference for smoking-related stimuli by challenge condition and condition order. Interference scores were

Modelling Acute Effects (alcohol intoxication) in the Lab

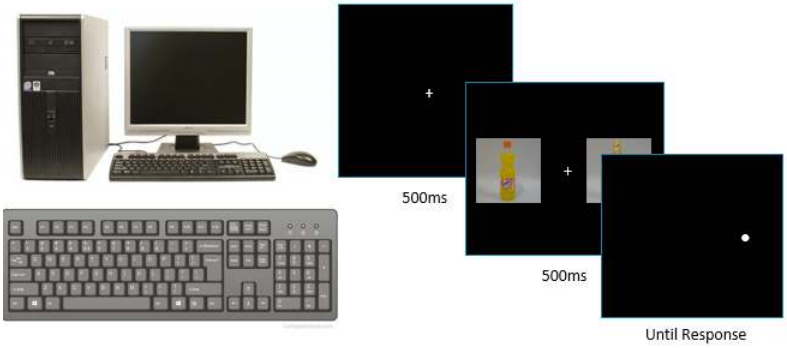
She often models intoxication in a lab setting, so getting people drunk in a lab

- She gives **Alcohol or Placebo –** It is either vodka, tonic and lime – or tonic, lime and alcohol mist over the top (it is a very good placebo). They always did manipulation checks, asking people if they believed they were drinking or not
- She gives them in a **Double-blind (**the person administering the drink doesn't know what it contains and neither does the participant)
- By doing this they can really control the Different doses that they are giving to people and see how cognition and behaviour changes in different parts of the blood-alcohol concentration.
- As people get more drunk do we see impairment of certain conditions?
- Alcohol determined by weight (Kg)

Modelling Prolonged Alcohol Use in the Lab

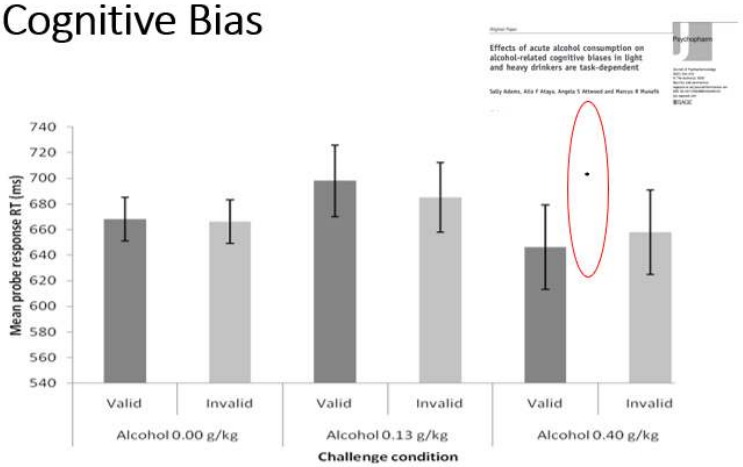
- Studies of heavy vs. light social drinkers (selection by amount, frequency of alcohol use)
- They used these cut off point for heavy vs light drinkers:
- Light drinker female ≤ 14 units per week
- Light drinker male ≤ 21 units per week
- Heavy drinker female > 15 -35
- Heavy drinker male > 21-50

Measuring Cognitive Bias



- Whether they were heavy drinkers or light drinker, they gave people this cognitive task which tapped into these cognitions.
- Cognitive bias = a preconscious selective bias for alcohol related information.
- In 1 task, they asked people to look at the centre of the screen, then it is replaced by two images – one is alcohol related and one is neutral (a soft drink). They simple ask people to press a key on the keyboard to respond to a little dot which replaced one of the pictures. There are about 200 trials where sometimes the dot is on the side alcohol and sometimes the neutral. The idea is if your attention, was preconsciously captured by alcohol related cues, will also be quicker at responding to the spot when it is replacing the picture of the alcohol cue.

Effects of Acute Alcohol Use on Cognitive Bias



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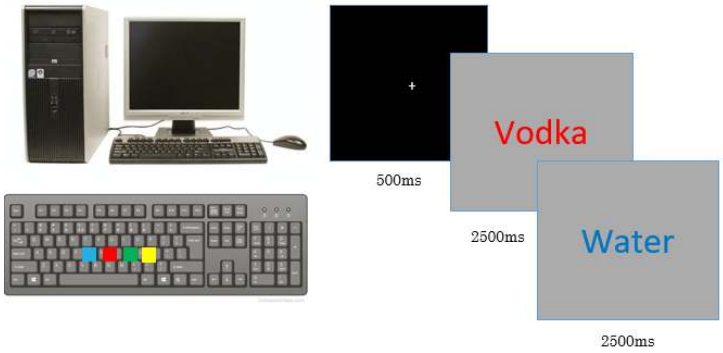
- This is what they found. They were able to show a difference between valid (alcohol) and invalid (soft drink) cues when people had been given a drink. The first section is when people are given a placebo, the second is when people are given a shot, and the third is when people were giving a double drink.

- **They found that when people were intoxicated they did show this selection processing bias for alcohol related cues**.

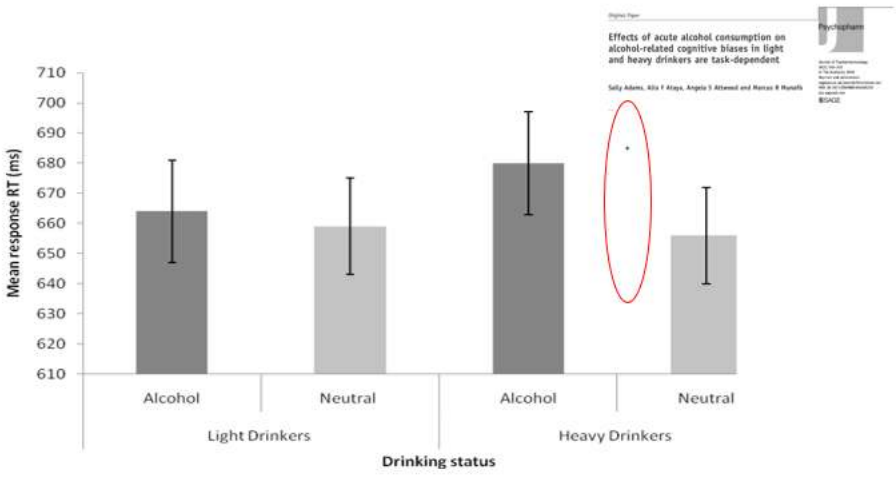
Measuring Cognitive Bias



- After this they did another study to see whether cognitive bias would differ between light and heavy drinkers

- They used the modified stroob task again. So it is about naming the colour of the word not the word, but the words were either alcohol related or neutral (soft drinks). If you are slower to colour name alcohol related ways you showing a cognitive bias, because your attention is focussed on the semantics of the word rather than just the colour.

Effects of Prolonged Alcohol Use on Cognitive Bias



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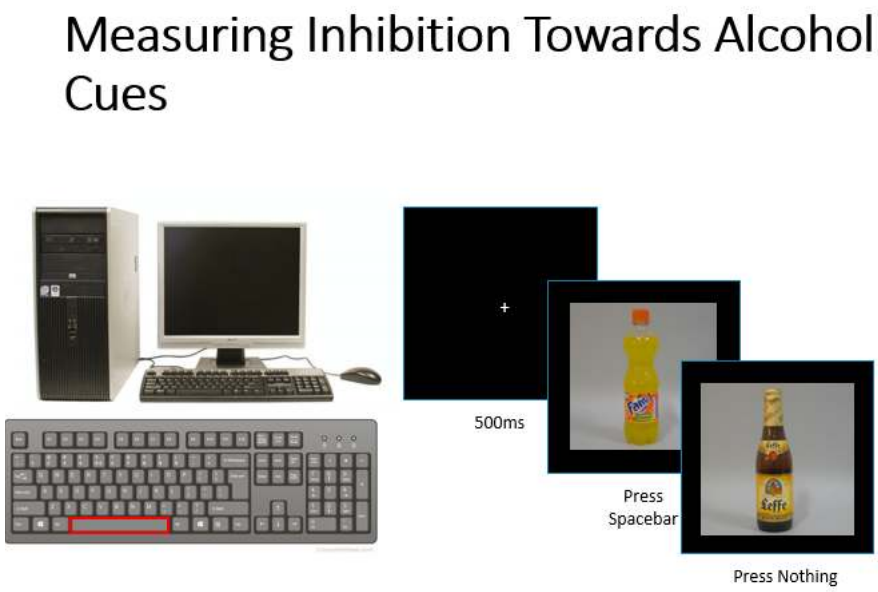
- So they measured the light and heavy drinkers separately and the reaction times to the alcohol and neutral words.

- They found that heavy drinkers (people who reported drinking more units per week) did show a cognitive bias for these alcohol related cues.

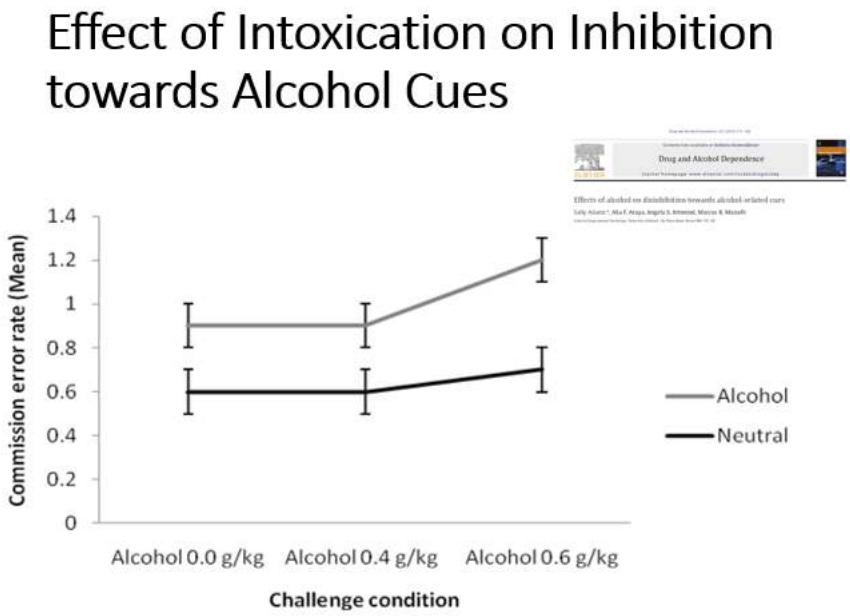
Effects of Alcohol on Inhibition towards Alcohol Cues

- **She is interested in the role of impulsivity.**
- **In the literature, people who have alcohol use disorders they find it really hard to resist the urge to drink and this is particularly strong when they are confronted with alcohol related cues in their environment e.g. seeing someone else drink, walking past an off licence.**
- **They wanted to see whether social drinkers would find it more difficult to say no (inhibit their behaviour) when they are faced with these alcohol related cues**
- Drug users have difficulty in resisting drug-related urges, especially when confronted with drug-related cues
- Do drinkers have greater difficulty in inhibiting their response towards alcohol cues when intoxicated?



- People were told to focus in the middle of the screen and then shown either a alcohol drink or a soft one after each other. In some trials they were told – when it was a soft drink they should

press the space bar but when it was an alcoholic drink they should press nothing. These were swapped round in some trials and you had to do the opposite.



- They found that whether they gave people a placebo, a small amount of alcohol or a large amount of alcohol- everybody still made more errors when they had to inhibit the response towards the alcohol related cues. This was most prominent when people were intoxicated, people found it most difficult to inhibit there response to the alcohol cues when they were drunk.

What these studies show…

When people are intoxicated or when people are heavier drinkers, they show an automatic processing bias for alcohol related cues

- Acute alcohol consumption increases preferential and biased processing of alcohol-related cues in the environment

- Intoxicated individuals have poor control over responses toward alcohol-related cues. So once we are already drunk it might be already late to make decisions about whether we are going to have

another drink. This is really problematic because we live in a world where we are bombared by alcohol related cues

- So what…

Policy Implications

- **Advertising** and Availability
- Advertising is everywhere: tv ads, billboards, bus stops, shop display offers, social media, magazines
- Alcohol is readily available : it is increasingly being served in cafes, some starbuck's even serve alcohol now, virgin trains now have their own beer, buy alcohol at the cinema, airports.

- **Public engagement/Science communication** - she works a lot in this area, trying to debunk all of the myths and misconceptions that we talked about above. She does a lot of work on radio, postcasts, tv to improve access to information.

Two of Sally's current projects:

Cognitive Effects of Hangover

- We talk a lot about the harms of being drunk, but what about the next day

- Develops when blood alcohol concentration (BAC) returns to zero (when all the alcohol has left your body)

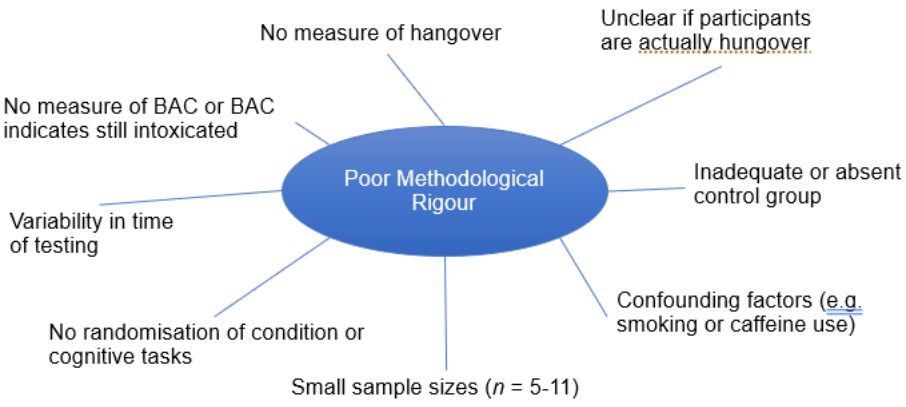
- So people often think they are fine to drive, go back to work etc. But we don't know whether some of the effects of drinking carry over to hangover e.g. slower reaction times, worse memory

- Costs the UK economy £6.4 billion each year due to absenteeism, costs of lost productivity unknown
- Very little research has examined the effects on the cognitive processes required for everyday functioning such as workplace performance, driving etc.
- There was virtually no research on what happens to us cognitively when we are hungover

She looked into all the research on hangovers and it was really **lacking and terrible**:

They didn't measure whether people were hungover or drunk, they didn't look at time of recordings, some studies only had 5 people in it, they let people keep on smoking and drinking coffee which reacts your cognition, they didn't have a control.

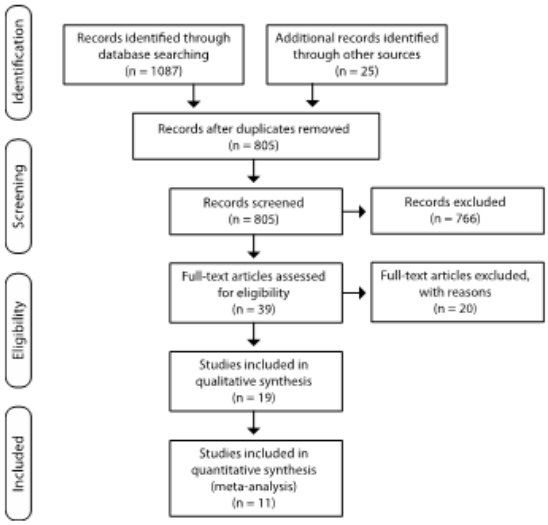
Research in Hangover


No measure of hangover
Unclear if participants are actually hungover
No measure of BAC or BAC indicates still intoxicated
Poor Methodological Rigour
Inadequate or absent control group
Variability in time of testing
Confounding factors (e.g. smoking or caffeine use)
No randomisation of condition or cognitive tasks
Small sample sizes (n = 5-11)

A systematic review was needed

- So they did a systematic review of all of the existing research so we could see what the general picture was and where to take future research in this area

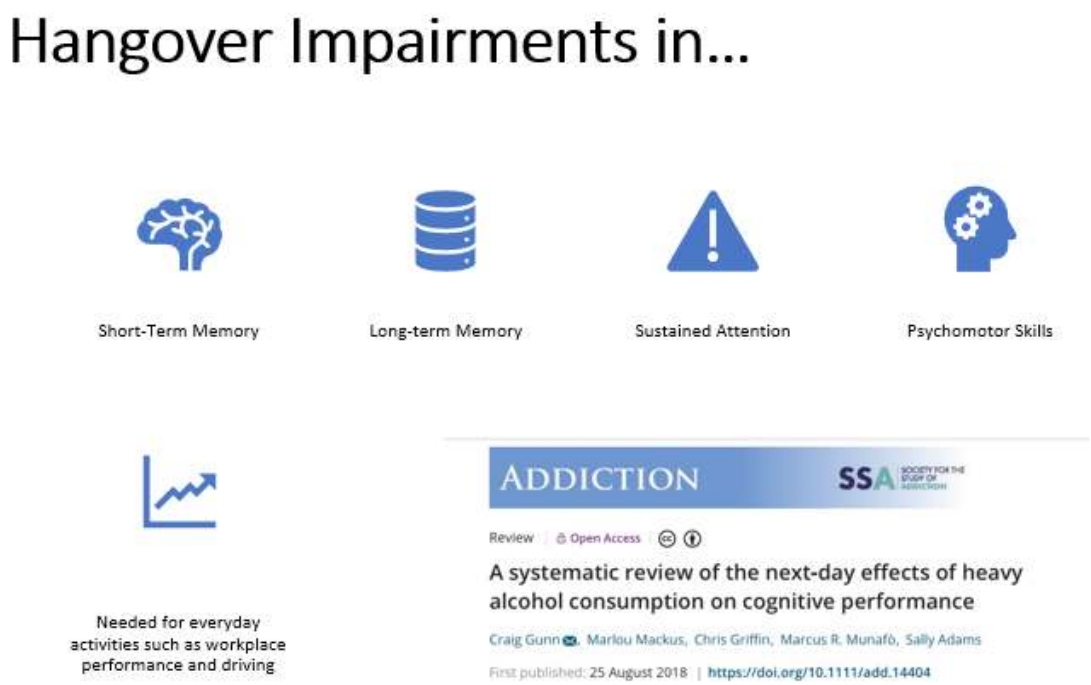
Systematic Review and Meta-Analysis


Identification
Screening
Eligibility
Included
Records identified through database searching (n = 1087)
Additional records identified through other sources (n = 25)
Records after duplicates removed (n = 805)
Records screened (n = 805)
Records excluded (n = 766)
Full-text articles assessed for eligibility (n = 39)
Full-text articles excluded, with reasons (n = 20)
Studies included in qualitative synthesis (n = 19)
Studies included in quantitative synthesis (meta-analysis) (n = 11)

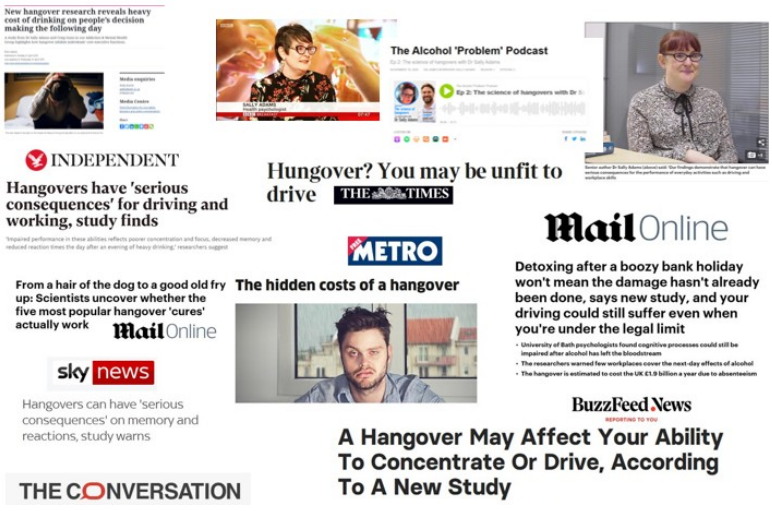
Criteria based on the newly established alcohol hangover definition, including:

- BAC could be >0, but <0.02% - as acute effects are observed above this threshold
- Measured hangover symptoms (validating the hangover condition)

- They were quite strict on what studies were included, they only wanted ones where they measured that the person wasn't intoxicated anymore (so they were definitely catching hangover) and that they included some measure of hangover (most measures ask about symptoms e.g. are you feeling dehydrated) also that they used a cognitive task to capture cognitive performance during hangover.


Hangover Impairments in...
Short-Term Memory
Long-term Memory
Sustained Attention
Psychomotor Skills
Needed for everyday activities such as workplace performance and driving
ADDICTION
SSA
Review
Open Access
A systematic review of the next-day effects of heavy alcohol consumption on cognitive performance
Craig Gunn, Marlou Mackus, Chris Griffin, Marcus R. Munafò, Sally Adams
First published: 25 August 2018 | https://doi.org/10.1111/add.14404

- They published the paper and it showed that even when all of the alcohol had left a persons body, when compared to a sober condition people had impairments in short term memory (e.g. holding a phone number), long term memory, sustained attention (very important for driving a car) and psychomotor skills (like coordination).
- This is really important because it shows when people are hungover (and think there safe to do things) they still have impairments in things they need for everyday activities like working and driving
- This piece of research was covered by over 300 news outlets globally!! She got to go on BBC breakfast
- **CRITICAL** – How do you distinguish between hangover and lack of sleep? It is something Sally has ti really carefully control for. She measures sleep with sleep scales. But sleep is partially alcohol induced, research shows alcohol leads to lesser duration of sleep and less quality. In the future she wants a hangover clinic where you can get people drunk and then measure there sleep and test them in the morning.


New hangover research reveals heavy cost of drinking on people's decision making the following day
The Alcohol 'Problem' Podcast
INDEPENDENT
Hangovers have 'serious consequences' for driving and working, study finds
Hungover? You may be unfit to drive
THE TIMES
METRO
Mail Online
Detoxing after a boozy bank holiday won't mean the damage hasn't already been done, says new study, and your driving could still suffer even when you're under the legal limit
From a hair of the dog to a good old fry up: Scientists uncover whether the five most popular hangover 'cures' actually work
Mail Online
The hidden costs of a hangover
sky news
Hangovers can have 'serious consequences' on memory and reactions, study warns
BuzzFeed News
A Hangover May Affect Your Ability To Concentrate Or Drive, According To A New Study
THE CONVERSATION

Future Research

- It was really good because it went on to inform future research
- They went on to do research to correct all the poor research that was out there
- They produced a series of papers showing how hangovers influence executive functions (e.g. goal planning, decision making)
- They also found that hangover affects your ability to regulate your emotions (this hadn't been looked at before)
- She's been in papers looking at what are the best thresholds for determining whether someone is hungover or not.
- She has become a 'hangover expert' and is on tv + radio a lot trying to dispel some of the myths

Journal of *Clinical Medicine*

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Article

The Effects of Alcohol Hangover on Executive Functions

Craig Gunn [1,*], Graeme Fairchild [2], Joris C. Verster [3,4,5] and Sally Adams [1,*]

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Article

Does Alcohol Hangover Affect Emotion Regulation Capacity? Evidence From a Naturalistic Cross-Over Study Design

Craig Gunn[1,*], Graeme Fairchild[2], Joris C. Verster[3]
Sally Adams[1]

Journal of *Clinical Medicine*

MDPI

Communication

Sensitivity to Experiencing Alcohol Hangovers: Reconsideration of the 0.11% Blood Alcohol Concentration (BAC) Threshold for Having a Hangover

Joris C. Verster [1,2,3], L. Darren Kruisselbrink [4], Karin A. Slot [1], Aikaterini Anogeianaki [1], Sally Adams [5], Chris Alford [6], Lizanne Arnoldy [1], Elisabeth Ayre [3], Stephanie Balikji [1], Sarah Benson [3], Gillian Bruce [7], Lydia E. Devenney [8], Michael R. Frone [9], Craig Gunn [5], Thomas Heffernan [10], Kai O. Hensel [11,12], Anna Hogewoning [1], Sean J. Johnson [6,13], Albertine E. van Lawick van Pabst [1], Aurora J.A.E. van de Loo [1], Marlou Mackus [1], Agnese Merlo [7], René J.L. Murphy [4], Lauren Owen [14], Emily O.C. Palmer [15], Charmaine J.I. van Rossum [1], Andrew Scholey [3], Chantal Terpstra [3], Vatsalya Vatsalya [16,17,18,19,20], Sterre A. Vermeulen [1], Michelle van Wijk [1] and Ann-Kathrin Stock [21,*] on behalf of the Alcohol Hangover Research Group

This is another project that she is interested in at the moment…

Tobacco Control in Colombia

- Because Colombia has had a lot of conflict and they are a low to middle-income country, they haven't really focused public health on alcohol and tobacco related health issues. They focus on infectious diseases and conflict.
- The number of people smoking, drinking and becoming obese in Colombia is rising as rhe country is rapidly urbanising.
- Smoking causes 13% of deaths among men and 11% of deaths among women
- The prevalence of smoking among children is higher than other middle-income countries – it has one of the highest smoking rates in children
- The WHO recommends that pictorial warnings cover at least 50% of the pack and that branding is replaced with plain packaging
- Colombia doesn't have this
- **International Collaboration and Future Research**
- Sally has been working with the Ministry of health in Columbia, to test the effectiveness of warnings and has been doing studies looking at the effects of plain packaging.
- Sally has been looking at peoples response to these new packaging's, whether they have effected quit intentions.
- The Ministry of Health and the WHO have called for 'local evidence' before larger HWLs, or plain packaging is proposed

COVID? Over lockdown they have seen different patterns in drinking. Lighter drinkers (perhaps those who only drink socially) have cut down drinking or even stopped. But heavy drinkers before lockdown seemed to have increased their alcohol consumption. This is a general pattern, but there has only been about 3 pieces of research done.

She is going to do a research looking at alcohol consumption and lockdown. She is also going to look at how working from home has effected drinking and hangovers, because people aren't going into work so they don't have to worry about driving to work or people seeing them hungover as much might change peoples ideas about drinking during the working week.

Supermarkets saw a significant increase in alcohol sales, but it is difficult to say how much that transfers from social drinkers and heavy drinkers. There are lots of things at home that effect drinking e.g. when your in a pub they use standard measures but when your at home you don't, when they have done studies getting people to poor what they think is a unit or a small glass of wine, people nearly always pour MORE than the actually measure.

How does this research inform **alcohol therapies?** One of the studies she has done is looking at developing cognitive re-training strategies. From the cognitive biases that we looked at, people have developed cognitive tasks where people learn to avoid tobacco/alcohol related cues. They haven't been that successful yet thought.

Sally has also develop computerised tasks that train people to inhibit their persons towards alcohol/tobacco cues. But there are on an individual level. And cost-effect therapies are ones that work for everybody (e.g. nasty pictures on fag packets).

WEEK 11 NOTES LECTURE 11/12/20 – Friday

How to write essay assessment

- All notes taken from pp and panopto
- All notes are in essay help document

END OF BEING A PSYCHOLOGIST UNIT